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PUBLIC SECTOR IN INDIA

A NTC Emporium

Round-Up

National Textile Corporation

NATIONAL Textile Corporation (NTC) was incorporated in April, 1968, with main objective of ensuring continued employment to the textile workers who were rendered jobless as a result of closure and also for managing the affairs of the sick textile undertakings taken over by the Government. It was also proposed to rehabilitate and modernise these mills after the takeover and wherever necessary expand them with a view to make them economically viable.

At the time of incorporation of the NTC there were only 16 mills under Government management. The total number of mills under the NTC now is 111. It has a paid-up capital of Rs 168.95 crores.

With a view to ensuring effective management on decentralised basis, NTC has formed 9 subsidiary corporations with Headquarters at Delhi, Kanpur, Indore, Bombay (two subsidiaries), Ahmedabad, Calcutta, Bangalore and Coimbatore.

Out of 109 mills, 38 are spinning units, 71 (including 4 weaving only) are composite units and one processing unit. The total installed capacity of these mills is 3.2 million spindles and 47,787 looms. This accounts for approximately 18 per cent of the spining capacity and 23 per cent of the weaving capacity of the cotton textile mills industry of the countr

(*Contd on cover III*)

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Editorial

Public Sector's Future

EVEN during the freedom struggle our national leadership was aware of the need for planned efforts to undo the ravages of colonial rule and to attain economic prosperity and social justice. Later, free India's Constitution directed the state to work for national reconstruction and fair distribution. The adoption of the objective of a socialist pattern of society also gave the state a controlling role in the economic field. The requirement of large capital which was beyond the capacity of private capitalists was another compelling factor for the government to directly participate in development by establishing the public sector. The Industrial Policy Resolution of 1956 formed, and still forms, the broad framework for demarcating the roles of public and private sectors.

The public sector has grown to an enormous extent during the three decades of planning, especially from the second plan period onwards. The Central investment in public sector undertakings has increased from Rs. 29 crores in 1951 to Rs. 15,602 crores in 1979. The number of the undertakings has increased from just five to 179 during the same period. The share of public sector in the national domestic product has risen from 10.7 per cent in 1960-61 to 19.4 per cent in 1978-79. It has monopoly in railways, communications and air transport ; virtual monopoly in coal mining, power generation and petroleum industry ; a predominant share in banking, insurance shipping, steel and other metals, machine tools, fertilizers, insecticides and petrochemicals ; and share in light engineering industries and consumer industries like drugs, textiles, etc. Apart from establishing new industries it has also been taking over old ones from time to time for various reasons. It has also been participating on a large scale in trading and marketing activities, including foreign trade.

The most important achievement of the public sector is the very industrialisation of the country. By establishing the basic and heavy industries and providing the infrastructure, it has enabled the birth of innumerable light industries and also provided the vital inputs for ushering in the 'green revolution'. It has thus promoted the rapid growth of private sector industry and agriculture. The public sector has played a pioneering role in dispersing industries in the various regions of the country, particularly in the backward areas. It has been providing increasing employment—the jobs have increased from seven million in 1961 to 14.7 million in 1978, accounting for 67.5 per cent in the organised sector. It is generally recognised as a model employer, providing fair wages, good working conditions and amenities, and recognising the rights of the workers. As a result, industrial relations in it are better and the man-days lost are much less than in the private sector.

In spite of its phenomenal growth and achievements the public sector has also come in for criticism for its major shortfalls. The most important defect in the public sector is the overall net loss incurred by it. According to an estimate the loss was about Rs. 517 crores in 1978-79. Profits are universally accepted as an index of efficiency and any amount of talk about social objectives cannot disprove it. The non-utilisation of the rated capacity by the public sector undertakings is another major shortcoming. The shortfalls in core items in particular adversely affect the growth of the entire economy. Some other defects noticed in the public sector are as follows : lack of professional management, lack of autonomy for the managers of undertakings, adoption of bureaucratic procedures which breed delay, appointment of surplus labour, overstocking of inventories, unproductive expenditure, neglect in maintenance of equipment, taking over the burden of sick industries, uneconomic pricing of products and lack of organic linkages between the big plants and small industries.

The defects in the public sector should be quickly rectified so that it may effectively play its 'commanding role in the economy. Unless it produces enough goods and earns reasonable profits it cannot countervail the power of private capitalists. Conscious of the deficiencies in the public sector, especially in the core items, the new Central Government initiated measures—including strong ones as in the case of railways—for changing the situation. As a result of this, the performance of the public sector has been improving in the past four or five months. Its comparatively better performance between 1972-73 and 1976-77, and the present hopeful trend show that a strong political will is basic for the effective functioning of public sector as in the case of other branches of national life.

A Committee headed by Shri Mohammad Fazal is at present engaged in a unit-by-unit study of the public sector. It is hoped that the Committee would suggest ways and methods for putting it on a permanently sound footing. The sixth five year Plan envisages an outlay of Rs. 90,000 crores on the public sector which is also required to contribute about Rs. 11,000 crores for the Plan resources. It should strengthen itself through a crash nutrition course in order to perform this herculean task. Its survival in this competetive world depends on its success.

Public Sector in India

Narayan Datt Tiwari

THE BROAD OBJECTIVES of Indian planning and its social premises emanate from the Directive Pdinciples of State Policy set forth in our Constitution. In the implementation of the Directive Principles the State has to take on heavy responsibilities as the principal agency on behalf of the community as a whole.

As early as in the First Plan, the policy approach enunciated was that the State must not only assume the responsibility for providing infrastructural facilities but also undertake direct promotional work. The need for the intervention of the State in the industrial field was recognised and the development of basic and strategic industries was earmarked to the public sector. At the same time, it was realised that the task before the country was so large that it would be necessary to make use of the initiative and expertise available in the private sector so that maximum growth could be achieved. The activities of the private sector were, however, sought to be regulated and made to conform to the overall social and economic objective of planned development. It was implied that Government's power of regulation and instruments of central as well as the fiscal and monetary policies were to be used to give direction to the economic activities in the private sector.

The Industrial Policy Resolution of 1956 spelt out the role expected to be played by the public sector in the Indian economy in more concerte terms. This Resolution which continues to provide the framework of Industrial policy even today, provided that 'the need for planned and rapid development requires that all industries of basic and strategic importance or in the nature of public utility services should be in the public sector. Other industries which are essential and require investment in a scale which only the State, in the present circumstances, could provide, have also to be in the public sector. The State has, therefore, to assume direct responsibility for the future development of industries over a wide area.' Two schedules were drawn up : Schedule 'A' enumerating 17 industries, the future development of which will be the exclusive responsibility of the State, and Schedule 'B' containing a list of 12 industries which will be progressively State-owned and in which the State will, therefore, generally take the initiative in establishing new industries, but in which private enterprise will also be expected to supplement the efforts of the State.

The role of the public sector was expanded in various Plan periods in accordance with the social and economic objectives envisaged in the plans. In the Third as well as the Fourth Plan periods, further emphasis was laid on policies relating to reduction in inequalities, prevention of concentration of economic power, development of tribal and backward areas as well as backward communities. Following the reorganisation of credit policies resulting from the nationalisation of major banks in 1969, the public sector was expected more and more to occupy the commanding heights of the economy. The principal objectives of removal of poverty and attainment of self reliance envisaged in the Fifth Plan also provided a dominant role to the public sector.

The Central Public Sector today covers a wide range of activities though the bulk of investment is in the industry and mining sector

The basic soundness of this policy of assigning a dominant role to the public sector has been demonstrated by the progress made in the country during the last two decades. The structural transformation that has been achieved would not have been possible but for the initiative taken by the State especialy in the field of basic and heavy industries. The State is also instrumental in creating the necessary infrastructure which is so vital for rapid growth. It is this heavy investment in economic and social overheads, combined with the vigorous growth of basic and heavy industries in the public sector, that has forced the pace of industrialisation and created the necessary environment for stimulating industrial production in the private sector.

Increasing Role

The Central public sector today covers a wide range of activities, though the bulk of investment is in the industry and mining sector. In the energy sector, the public sector has a virtual monopoly in coal mining, exploration and refining of petroleum and in electricity generation. Apart from the monopoly in the field of railway transport, communications and air transport, public sector accounts for a considerable share in shiping as well as road transport. With the nationalisation of large banks, the public sector dominates in banking, financial and insurance services. In the manufacturing sector, the activities of the public sector cover a large number of industries particularly the basic industries such as steel, non-ferrous metals, fertilisers, power generation equipment and a host of other industries such as machine tools, mining machinery, steel making equipment, drugs, petrochemicals, insecticides and light engineering industries. As a result of the take-over of sick industries, the role of the public sector has further expanded in the field of production of consumer goods like textiles. So much so that today the producution of cloth by the sick mills taken-over by the Government amounts to about one-fifth of the total production of cloth in the organised sector.

---

* Minister for Planning and Labour and Deputy Chairman of Planning Commission.

In terms of contribution to net domestic product (NDP) at current prices the share of the public sector as a whole has increased from 10.7 per cent in 1960-61 to 19.4 per cent in 1978-79. In the case of departmental and non-departmental enterprises alone, their share of NDP has increased from 5.2 per cent in 1960-61 to 11.8 per cent in 1978-79.

Accordingly to the statistics compiled by the Bureau of Public Enterprises, the investment in the Central Goverment enterprises (other than departmental projects) amounted to Rs. 15,620 crores at the end of 1978-79. The bulk of the investment, whether in the shape of equity capital or long-term loans, has come from the Central Government though in some cases State Governments have participated in paid up capital and in a few cases private parties have also made investments. The growth of the Central public sector can be appreciated from the number of enterprises and the investment figures at various points of time given in the following table :

	(Rs. crores) Total Investment	Number of enterprises
(i) At the commencement of Ist Plan (1-4-51)	29	5
(ii) At the commencement of 2nd plan (1-4-56)	81	21
(iii) At the commencement of 3rd plan (1-4-61)	953	48
(iv) At the commencement of 4th plan (1-4-69)	3902	85
(v) At the commencement of 5th plan (1-4-74)	6237	122
(vi) As on 1-4-1977	11997	145
(vii) As on 1-4-1979	15602	176

The investment of Rs. 15,620 crores at the end of March, 1979, is spread over a wide spectrum of production, mining, maufacturing, marketing and trading enterprises, financial institutions, etc. A significant feature of the public sector investment, however, is the predominance of investment in a few crucial sectors namely steel, minerals and metals, petroleum, coal and chemicals and fertilisers. These alone account for over 60 per cent of the total investment in the public sector, as would be seen from the table given below.

Industry	(Rs. crores) Investments 1979	Percentage
Steel	3102	19.9
Chemicals & Fertilisers	2738	17.5
Coal	1513	9.7
Minerals & Metals	1158	7.4
Petroleum	893	5.7

More Goods and Jobs

Another indication of the role of public sector in the strategy of industrialisation in the country can be had from the impressive increases in its share in the total national output of basic raw materials as well as certain industrial and agricultural inputs. Apart from industries like coal, petroleum and copper, which are almost entirely in the public sector, the share of the public sector in a large number of oher vital industries such as steel, cement, aluminium and fertilisers has substantially increased.

Some of the manufacturing units of Cement Corporation of India or assembly units of HMT have been deliberately set up in backward regions to foster employment.

The growth of the public sector in the last decade is marked by two other distinct trends. The pioneering enterprises set up by the Government have grown in number as well as in the volume of their turnover. An equally important feature is the growth in the number of units taken-over from the private sector, partly because of nationalisation of certain key industries like coal, copper, etc. but primarily because of the sick units being taken over by the Government in order to have stability of industrial production and provide continuity of employment. The number of employees working in enterprises which have been taken over by the Government now constitutes around 48 per cent of the total number of employees working in Central public sector enterprises.

Apart from providing avenues for increased employment, the public enterprises have also helped in bringing about reduction in disparities in income through the process of generating employment and by pushing up the wage levels of the lower income group. The role of public sector as a model employer in this context also needs to be emphasised. The social objectives that the public sector enterprises serve by providing housing, medical care and educational facilities to its employees are some of the important dimensions. During the last decade, the average emoluments of the public sector employees have increased from Rs. 4264 per annum in 1968-69 to Rs. 11,031 per annum in 1978-79. The average expenditure per employee on welfare has also increased from Rs. 420 per annum to Rs. 701 per annum during the same period.

Although the location of public sector enterprises, which are generally of a capital intensive nature, has primarily to be determined on techno-economic considerations, the Central investment is dispersed throughout the country and the need to develop backward regions is kept in view to the extent possible. Some of the manufacturing units of Cement Corporation of India or assembly units of HMT have been deliberately set up to foster development in the backward regions. The public sector has also helped in the development of ancillary units. As a result of sustained efforts, the number of ancillary units has grown to more than 800 now.

Profit and Loss

A few words about the often-repeated criticism of the public sector regarding the losses or low return on capital invested in the public sector undertakings. According to data compiled by the Bureau of Public

Enterprises on the profitability of all the Central Public Sector indstrial and commercial undertakings, there was a net loss of Rs. 31.96 crores in the year 1978-79. But at the same time it has also to be noted that 88 running enterprises earned a net profit of Rs. 484.75 crores during the year. These included undertakings like ONGC, Indian Oil Corporation, Steel Authority of India Limited, Air India, Indian Airlines etc. A large number of other unudertakings did, however, incur losses during the year amounting to Rs. 516.71 crores. While a substantial part of it is accounted for by Coal India Limited and its subsidiaries, a number of other undertakings like Shipping Corporation, Heavy Engineering Corporation, Indian Petrochemicals Corporation, Hindustan Fertiliser Corporation, Indian Iron and Steel Company also showed substantial losses. Apart from losses in financial terms, capacity utilisation in a large number of public undertakings has been rather low. While the performance of the public sector need not be viewed merely in terms of its financial achievements, there cannot be any two opinions about the need to raise the levels of capacity utilisation and more efficient management of public sector enterprises. The public sector should undoubtedly generate adequate surpluses which can be utilised for further development of the economy. In order to bring about an improvement in the performance of public sector undertakings, high level committee under the Chairmanship of Member, Planning Commission has been set up to undertake a study of public sector enterprises on a unit-wise basis and to suggest suitable measures to imrove their efficiency as well as for developing proper management cadres in varios functional fields such as operations, finance, marketing information systems etc.

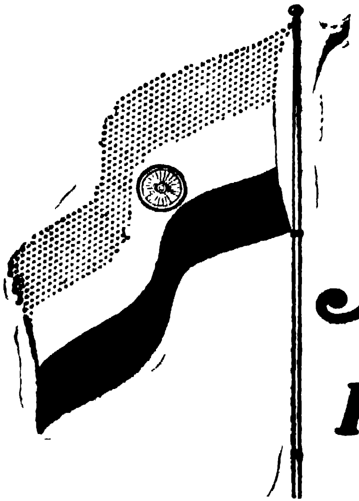
In the Sixth Plan

In the Sixth Plan, which is currently under formulation, it is envisaged to have an average annual growth rate of 5 per cent. The achievement of this growth rate would depend to a large extent on the efficient performance of the public sector. According to tentative estimates, the public sector outlay in the Sixth Plan is estimated at about Rs. 90,000 crores out of a total investment of Rs. 156,000 crores in the economy. Of this, the current outlay would be of the order of Rs. 13,000 crores and public sector investment is placed at Rs. 77,000 crores. Although the sectoral allocations have not yet been finally decided, there is no doubt that substantial provisions will have to be made in the Plan for augmenting infrastructural inputs like coal, power, railways as well as for basic industries like steel, non-ferrous metals, fertilisers, petro-chemicals, petroleum, etc. in the public sector. A crucial role is, therefore, assigned to the public sector in the Sixth Plan. The role of the public sector in the field of industry and mining becomes all the more vital to achieve an annual average growth rate of 8-9 per cent in industrial production envisaged in the Plan. Viewed in relation to past performance when the overall industrial growth rate over the Ist decade has been of the order of 4-5 per cent, it presents a challenging task, and concerned efforts have to be made in toning up the efficiency of public sector enterprises. The success of the Sixth Plan would, in fact, depend to large extent on a significant improvement in the performance of public enterprises.

It has been noticed that a major set-back to industrial production in the year 1979–80 as well as in the current year has been the inadequacy of infrastructural inputs such as railway transport, power, coal, etc. The low capacity utilisation and the deficiencies in these sectors have caused a great imbalance in the economy. While in the short term, efforts are being made to bring about improvement in this respect through coordination and removal of bottlenecks, great stress is proposed to be laid in the Plan on the creation of additional capacities in these sectors. The public sector will have to play a predominant role in these sectors. As mentioned in the 'Framework of the Sixth Five Year Plan 1980—85' the challenge ahead is to make use of the efficient, modern, large scale public enterprises as pace setters in a joint technological leap forward for industry and the entire economy.

Do You Know ?

1. **There were 189 Central Government Public Sector Enterprises as on October 1, 1980.**
2. **The Public Sector Enterprises cover a wide range of manufacturing and production activities with a total investment of about Rs. 17,000 crores.**
3. **As many as eighty-eight pubic sector enterprises made a net profit of Rs. 484.75 crores (after tax) during 1978-79.**
4. **Oil and Natural Gas Commission (ONGC) earned the highest net profit (after tax) of Rs. 72.52 crores during 1978-79, followed, by Indian Oil Corporation (Rs. 69.20 crores), and Steel Authority of India Ltd. (Rs. 65.84 crores).**
5. **The Public Sector Enterprises provide employment to about 19 lakh persons.**
6. **The sales of the Public Sector Undertakings in 1978-79 were to the tune of Rs. 12,137 crores.**
7. **As many as eighty-three public sector enterprses are providing housing facilities to their employees.**
8. **The capital outlay on townships in these undertakings was Rs. 554 crores at the end of March, 1979.**
9. **About five lakh Residential Units had been constructed till the end of March in these Public Sector Enterprises.**
10. **Public Sector Undertakings spent Rs. 92 crores on social services such as education and medical care during 1978-79.**



Hearty Greetings on the Republic Day

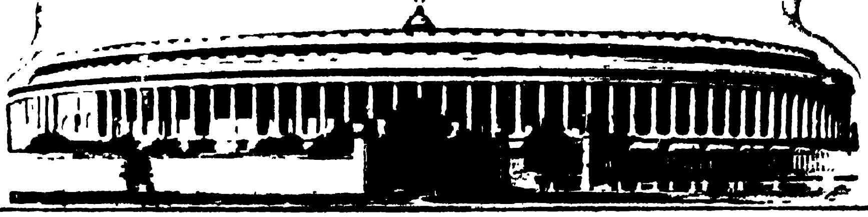
On January 26, 1950 the people of India laid the foundation of a Sovereign Socialist Secular Democratic Republic.
In the past 31 years we have many achievements to our credit.

We have

☐ Set up democracy on a strong foundation;
☐ Overcome chronic food shortages;
☐ Emerged as one of the most industrialised countries;
☐ Risen to be a top ranker in Science and Technology;
☐ Fought off successfully three external aggressions
☐ And our voice counts in international forums.

Yet much more has to be achieved for securing complete social justice to all and raising the standard of living of the people.

This can be done only through strong bonds of national unity.



Consolidate National Integration And Strengthen Secular Forces For Progress And Security

davp 80/330

Iron and Steel: Performance and Prospects

Pranab Mukherjee*

INDUSTRIAL development in India has reached a high degree of self-reliance and the steel industry occupies a place of primacy in the strategy of future development. The capacity of steel in the large integrated steel plants is likely to be doubled from the present level of 11.4 million ingot tonnes to about 23 million ingot tonnes by 1989-90. The public sector steel industry has been restructured to meet the new challenges and due emphasis is being laid on technological/rehabilitation and modernisation of the industry. Apart from this, a complementary role is being played by the mini-steel plants using the electric arc furnace route and efforts are being made to reduce the feed stock problem of this sector. Plans are also being drawn up to balance the availability of basic inputs to the steel industry taking into account the special problem of coking coal, sponge iron, power etc. While exercising a high degree of selectivity, there is no inhibiting bias against the import of sophisticated technology, wherever considered necessary for the rapid growth of the vital industry.

The steel industry in India can be broadly divided into two parts—integrated steel plants and the other units. There are presently six integrated steel plants in the country with a combined capacity of 11.4 million ingot tonnes, with five in the public sector and one in the private sector. Production from integrated steel plants in terms of ingot steel and saleable steel during 1978-80 is given in Table 1.

Table 1

(In '000 tonnes)

Steel Plant	Annual rated capacity	Production	Percentage of rated capacity
Ingot Steel			
BSP .	2500	2108	84.3
DSP .	1600	882	55.1
RSP .	1800	1268	70.4
BSL .	2500	1426	57.0
IISCO .	1000	565	56.5
TISCO .	2000	1779	89.0
Total	11400	8028	70.4
Saleable Steel			
BSP .	1965	1706	86.8
DSP .	1239	604	48.7
RSP .	1225	1045	85.3
BSL .	2000	849	42.5
IISCO .	800	430	53.8
TISCO .	1500	1447	96.5
Total	8729	6039	69.2

The production of ingot steel in the integrated steel plants during the year 1979-80 was 8.028 m.t. which represents 70.4 per cent of the rated capacity and 85.9 per cent of the target set for the year. Similarly, the corresponding production of saleable steel from the integrated steel plants during the year was 6.039 m.t. which represents 69.2 per cent utilisation of the rated capacity and 81.6 per cent realisation of the target set for the year. The production performance was below the target primarily due to shortage of power supplied to both the coal and steel sector which in turn also resulted in the short supply of coking coal to the steel industry. The total availability of steel in the economy of the country during 1979-80 was 8.615 m.t. This could be achieved by a contribution from mini steel plants to the extent of 1.32 m.t. and planned imports.

Expansion Plans

In the expectation that the economy will regain the momentum of growth and that the various constraints in maintaining production at high levels will cease to operate, it has been planned that the availability of steel in the economy during 1980-81 will increase by 17.9 per cent, that is 1.545 m.t. over the last year that is 1979-80.

It has been planned to increase the production of saleable steel from the integrated steel plants to 7.32 m.t. during 1980-81. Maintaining the exports at the previous year's level with an anticipated contribution from the electric arc furnace industries to the extent of 1.5 m.t. and planned imports of about 1.4 m.t., the total availability of steel in the home market during 1980-81 would be about 10.16 million tonnes.

The following important capital investment schemes are either in progress or are in advanced stages of consideration or are scheduled for completion in the coming years :

(i) Completion of current expansion programmes of Bhilai and Bokaro Steel Plants to 4.0 m.t. each.

(ii) Further expansion of Bokaro Steel Plant to 4.75 million ingot tonnes.

(iii) Salem Steel Plant with an annual capacity of 32,000 tonnes of cold rolled stainless steel sheets.

(iv) A plant at Rourkela to produce 37,500 tonnes of cold rolled grain oriented electrical steel sheets and 36,000 tonnes of cold rolled non-grain-oriented sheets per annum to meet the requirements of the electrical industry.

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*Minister of Steel and Mines and Commerce.

(v) Provision of additional meetin gfaciliteis at Alloy Steels Plant, Durgapur. to increase the existing capacity from 1,00,000 ingot tonnes of alloy steels to 1,60,000 tonnes.

(vi) Modernisation and replacement of equipment in the existing steel plants.

(vii) Schemes for updating of technology and replacement of obsolescent processes.

(viii) Research and Development Schemes for achieving higher productivity, product diversification etc. in steel plants.

(ix) Installation of an experimental plant for producing sponge iron using a solid reductant, namely, non-coking coal.

(x) Establishment of a shore-based steel plant at Visakhapatnam with an installed capacity of about 3.4 million tonnes of liquid steel to be implemented in two overlapping stages, within a span of 6 years from the start of work at site.

(xi) Certain proposals for the setting up of more new steel plants, including the coastal steel plant of about 3 m.t. capacity recently approved in principle for implementation in two stages, in financial and technical collaboration with some developed countries which are presently under consideration.

Modernisation

The Indian steel industry has achieved a fair measure of self-reliance in areas connected with steel making, as wide-ranging and diverse as preparation of feasibility studies, detailed project reports, design and consultancy work, project engineering including infrastructural facilities, plant and equipment manufacture, investigation of raw materials, training of manpower as well as development of management competence, besides efficiency in operation and maintenance. However, rapid development in the steel making technology is a continuing phenomenon and to keep abreast of these developments, the Indian steel industry must continue to make sustained efforts for process improvements, development of indigenous technology and adaptation of new technology, thereby retaining its competitiveness with similar industries in other countries. It is in this context that an R&D Centre for Iron and Steel has been established under the SAIL. At the same time, it is necessary to maintain close links with and benefit from technological developments in the more advanced countries. It is for this reason that the Government of India have also entered into agreements with the Soviet authorities for the preparation of programmes for introduction of technological improvements/innovations at Bhilai and Bokaro Steel Plants to achieve higher productivity from the existing facilities at both these plants at the lowest possible cost.

Future Projections

On the basis of a recent study conducted, the demand and availability of finished steel in 1984-85 and 1989-90 works out as given in Table 2.

Table 2

(in million tonnes)

Year	Demand	Availability	Gap
1984-85	12.700	11.395	1.305
1989-90	18.400	15.217	3.183

The gaps are proposed to be met by expansion of existing steel capacities and construction of new steel plants at greenfield sites, as well as optimum utilisation of the existing steel capacities. The production capacity of ingot/liquid steel is proposed to be increased from 11.400 m.t. by the end of 1979-80 to 14.56 m.t. by 1984-85 and 22.635 m.t. by 1989-90. Corresponding capacity in respect of saleable steel was 8.729 m.t. in 1979-80 and this is proposed to be increased to 11.301 m. t. by 1984-85 and to 18.166 m.t. by 1989-90. Table 3 gives the yearwise capacity build up in respect of ingot steel and saleable steel during the decade 1980-90.

Table 3

Capacity (Mtpy)

By and year	Ingot/Liquid Steel	Saleable steel
1979-80	11.400	8.729
VIth Plan		
1980-81	11.400	8 729
1981-82	11 400	8.717
1982-83	11.400	11.061
1983-84	14 560	11.301
1984-85	14.560	11.301
VIIth Plan		
1985-86	15.704	12.331
1986-87	17.204	13.601
1987-88	20.235	15.554
1988-89	21.335	17.009
1989-90	22.635	18.166

Table 4

(in million tonnes)

Year	Hot Metal	Ingot/ Liquid Steel	Saleable Steel	Saleable pig iron
1979-80	8 474	8.028	6.039	0.976
VIth Plan				
1980-81	10.040	9.160	7.320	1.400
1981-82	10.835	9.745	7.570	1.535
1982-83	11.479	10.650	8.320	1.450
1983-84	12.480	11.830	9.220	1.335
1984 85	13.195	12.450	9.710	1.400
VIIth Plan				
1985-86	14 645	13.425	10.500	2.005
1986-87	16.140	14.950	11.800	1.995
1987-88	17.510	16.335	13.025	2.045
1988-89	19.140	17.720	14.175	2.305
1989-90	20.375	19.385	15.580	1.970

The output of ingot steel at the main steel plants is planned to increase from 8.028 m. t. during 1979-80 to 12.450 m. t. in 1984-85 and 19.385 in 1989-90. Corresponding output of saleable steel in 1979-80 was 6.039 m.t. and is planned to be increased to 9.710 m. t. by 1984-85 and to 15.58 m. t. by 1989-90. Output projections of ingot steel/saleable steel and saleable pig iron during 1980-90 are given in Table 4.

The demand and availability position will be reviewed at the end of the Sixth Five Year Plan period. The thrust of present policy is to plan for further narrowing down the gap between demand and availability of steel by the Seventh Plan period (1985—90), to enable the industry to fulfil the role envisaged for it as a key factor in the country's industrial and economic growth.

Aerial view of the Kudremukh Project

Round-up

Kudremukh Mining Project

KUDREMUKH, which means 'horse's face' in Kannada and was known as 'Ayomukh' in the epic Ramayan, is located in the picturesque, Wordsworthian Aroli Gangamula range of the western ghats in Chikmagalur district of Karnataka State.

The National Mineral Development Corporation, a Government of India undertaking, started detailed investigation of this areas in 1965. With the collaboration of the U.S. and Japanese firms, a project report was prepared in 1971. However, in 1974, the collaborators withdrew their interest due to recession. Subsequently, two agreements were signed on November 4, 1975 with Iran for collaboration Iran agreed to extend a loan of 630 million US dollars, and to purchase of 150 million tonnes of iron ore concentrate of stipulated quality and specifications for 20 years from 1980, at the rate of 7.5 million tonnes a year, which could earn India in the process about Rs. 3000 crores in foreign exchange. In accordance with one of the terms of the financial agreement, a new Company was estabblished on April 2, 1976 to construct and administer the Kudremukh project. Thus was born the Kudremukh Iron ore Company with headquarters at Bangalore and with its two activity centres at Kudremukh and Mangalore.

The total area of the deposit is about five square kilometres. Kudremukh ore body is sedimentary precambrian iron formation composed of thin layers of magnetite and quartizite. The weathered ore is exposed on the surface and there is practically no 'over-burden'.

18 DPD/80—2

The total reserves are estimated at 610 million tonnes of weathered ore and transitional ore with an average Fe content of 38.6E for mineable ore. In addition the reserves of primary oxidised ore are estimated to be 400 million tonnes.

The mechanised mining scheme of Kudremukh envisages a daily production of run of mine of the order of 82,000 tonnes. The blasting will be done using pumpable slurry explosives which will be directly pumped into blast holes from specially designed trucks.

The concentrate will be transported from Kudremukh to Mangalore through a 67 km long pipeline, passing through a 1.7 km long tunnel to avoid pumping of slurry over the hills. The slurry pipeline will discharge concentrate slurry into two storage tanks at Mangalore Port. The concentrate will be reclaimed from the stockpiles by two bucket wheel reclaimers, each of capacity of 3500 tonnes per hour and conveyed to the shiploader for loading into the ships of 40,000 to 60,000 tonnes DWT capacity at an average rate of 6000 tonnes per hour.

As a result of production of 7.5 million tonnes as finished concentrate, about 13 million tonnes of material will be produced as waste per year. This waste or tailing comprising mostly of silica, will be disposed of without causing pollution. The Lakya valley located 'North-west' of the project has been chosen for the disposal of tailings. A 72 m high earthen dam has been provided across the Lakya river.

A view of Concentrator Plant of Kudremukh

Kudremukh-Mangalore Pipeline

The total expenditure to be incurred on the Kudremukh Project including infrastructure facilities of power and port may amount to Rs. 647 30 crores. About 20,000 people are working at Kudremukh at present. When the operation commences only about 3000 to 4000 will be directly employed.

Development of NE Region

THE Union Public Service Commission has decided to open additional examination centres in North Eastern Region at Kohima, Imphal, Agartala, Jorhat, Aizwal and Itanagar from early 1981 and the Staff Selection Commission had decided to open new examination centres at Jorhat, Tezpur, Kohima, Sibsagar, Dimapur and Aizwal for examinations to be held in early 1981.

Nineteen public sector undertakings have agreed to recruit 700 local youth this year for training and absorption.

This was disclosed at the high level Committee of Ministers for the Economic Development of North-Eastern Region which met in New Delhi recently under the chairmanship of Shri Yogendra Makwana, Union Minister of State for Home Affairs. This committee reviewed various steps taken on both the ongoing programmes and the new schemes in the region.

It was further disclosed that six roads namely Imphal-Silchar-Badarpur, Silchar-Aizwal-Lunglei, Link to Itanagar, North Trunk Road, Paikan-Tura-Daiu, and Lateral Road were declared as National Highways. A Special Action Group to expedite availability of adequate raw materials, financing and marketing facilities of small industrial units in the North-Eastern region has been set up with the Director of SIDO as the Convenor.

Public Sector Drug Industry

DALBIR SINGH*

THE entry of Government into the field of drugs and pharmaceuticals dates back to the early fifties with the conclusion of a tripartite agreement between the Government of India, UNICEF and WHO on 24-7-51 for the production of Penicillin in India. The UNICEF undertook to supply all foreign imported equipment to the tune of $ 8.5 lakhs while WHO undertook to provide technical assistance involving an expenditure of $ 3.5 lakhs. The terms of the agreement with these UN organisations required that this project should give them Penicillin free of cost to the tune of expenditure incurred by them for free distribution in India. Pimpri, near Pune was selected for the site of the project. The project started with the laying of the foundation stone in March, 1952 and a new company called Hindustan Antibiotics Limited (HAL) was registered on 30-3-1954 for the implementation of the project. The factory started regular production of Penicillin from August, 1955.

The second public sector project was the Indian Drugs & Pharmaceuticals Limited (IDPL) registered in April, 1961 for the implementation of the drugs and surgical instruments projects with the assistance of USSR on the basis of an agreement between the Government of India and the USSR. That Government granted a credit of Rs. 9.52 lakhs towards foreign exchange expenditure on preparation of detailed project report, working drawings, plant and machinery supplied by Soviet Union, training of Indian technicians in USSR, factories and deputation of USSR technicians in India for erection and commissioning of the plants. The three projects which were taken up were the Antibiotics Plant Rishikesh, the Synthetic Drugs Plant, Hyderabad and the Surgical Instruments Plant, Madras. The investment on these three projects was Rs. 61.15 crores The Surgical instruments Plant commenced production in 1965 while the Antibiotics Plant and Synthetic Drugs Plant started commercial production from 1967-68 in stages.

Since then the expansion of these projects has been taken up for implementation. IDPL have established a drug formulation unit in Gurgaon for the manufacture of various formulation and Nicotinamide and Chemicals plant at Muzaffarpur, Bihar, apart from taking up the expansion of the Antibiotics Plant, Rishikesh ad Synthetic Drugs Plant, Hyderabad. In the SIP, Madras a small formulation unit has also been established, as also diversification scheme. The plant is manufacturing scalpel blades as well as various equipments required by the drugs and chemicals and engineering industries. The total investment approved on expansion projects amounts to Rs. 64.65 crores

The expansions of the Antibiotics Plant and of SDP, Hyderabad are expected to be completed in 1981. Commercial production of Acetaldehyde, Acetic Acid and Methyl Ethyl Pyridine in Nicotinamide plant, Bihar has startede while Nicotinamide Plant was expected to be Commissioned by December, 1980. The formulation units at Gurgaon and Madras have commenced production.

> *The public sector drug industry in India has come of age. Under the new drug policy it has been assigned the leading role in the production and distribution of drugs.*

IDPL are obtaining strains and technology for the manufacture of oPtassium Penicillin, Tetracycline Erythromycin and Semi-synthetic Penicillins from Farmafin of Italy. The guarantee trial runs have been completed in regard to Penicillin, Erythromycin and Tetracycline while guarantee trial runs in regard to Semi-synthetic Penicillins are expected to be completed by the end of 1980 or early next year. IDPL are obtaining technology and know-how for the manufacture of Acetic Acid MEP and Nicotinamide from A.B. Bofors of Sweden.

Joint Ventures in States

IDPL are also establishing joint venture formulation units in Punjab, U.P. and Rajasthan. These are in collaboration with the State Financial Corporations. The Punjab unit located at Sangrur (Punjab Maize Products Ltd.) involving capital outlay of Rs. 797 lakhs and with IDPL's investment of 51 per cent at Rs. 127.50 lakhs will be producing Starch, Glucose and Dextrose and other by-prodcts. The other two units in U.P. and Rajasthan located at Lucknow and Jaipur are purely drug formulaltion units involving a capital outlay of Rs. 160 lakhs and Rs. 135 lakhs with IDPL's investment being Rs. 32.64 lakhs and Rs. 24.06 lakhs respectively. The present status of the Punjab unit is that the Glucose plant has already been satisfactorily commissioned and trial runs for Dextrose plant are scheduled to be taken up shortly. The entire project is expected to be completed by March, 1981.

The drug formulation unit in U. P. has commenced production from September, 1979. The Rajasthan formulation unit is expected to commence production by March, 1981.

IDPL also propose to establish similar joint venture units in Orissa, Gujarat, Bihar, M. P. and Jammu & Kashmir. A Phytochemical-cum-drug formulation unit is expected to be established in Himachal Pradesh.

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* Union Minister of State for Petroleum and Chemicals and Fertiliser.

The value of production of bulk drugs, formulations and surgical instruments and chemicals by IDPL during 1978-79 and 1979-80 was as follows :—

	(Rs Crores)	
	1978-79	1979-80
Bulk Drugs	30.52	37.57
Formulations	38.16	45.47
Surgical Instruments, Chemicals & Intermediates	2.64	3.24

HAL Schemes

Hindustan Antibiotics Limited which started with the manufacture of Penicillin are now manufacturing Streptomycin with the know-how and technical assistance originally obtained from Merck of USA; Ampicillin from APA with the know-how of American Home Products, and Gentamycin with technology from Medimpex and CHINOIN of Hungary. Glaxo of UK have also supplied strains for improving the production of Streptomycin. HAL have installed a Vitamin 'C' plant of 125 tonnes capacity with the technology developed by NCL, Pune.

The Government approved in February, 1977 the expansion of the manufacture of Penicillin, Streptomycin, Ampicillin and Gentamycin involving a capital outlay of Rs. 14.90 crores. The Government also approved the establishment of a second formulation unit at an estimated outlay of Rs. 339 lakhs. The total investment in HAL's projects including expansion amounts to Rs. 26.70 crores.

HAL are also establishing joint venture formulation units in Maharashtra, Karnataka and Goa in association with the State Corportions. The Maharashtra unit will come into production by March, 1981. The other two projects are in the initial stages of implementation. The total investment on these joint venture projects is Rs. 8.26 crores, with HAL's investment in equity at Rs. 1.60 crores.

The value of production of bulk drugs and formulations by HAL amounted to Rs. 14 crores and Rs. 13 crores during 1979-80 as against Rs. 12.7 crores and Rs. 10.46 crores during 1978-79 respectively.

Bright Future

Government have nationalised Smith Stanistreet & Company Limited, Calcutta under the IDR Act. The nationalisation took effect from 1-10-77. This company is engaged only in the manufacture of formulations. The Goverment have approved the expansion of formulation capacity involving outlay of Rs. 76 lakhs which would increase the turnover to Rs. 12 to 13 crores. The value of production of formulations amounted to Rs. 6.05 crores during 1979-80 as against Rs. 5.70 crores during 1978-79.

The Government have also nationalised on 15-12-1980, the Bengal Chemical and Pharmaceutical Works Limited, Calcutta, a company manufacturing drugs, formulations and chemicals. The management of this company was taken over on 15-12-1977. It is expected that with the nationalisation of the company there will be scope for further investment resulting in improvement. The value of production during 1979-80 was Rs. 8.41 crores as against Rs. 7 crores during 1978-79.

The Public Sector drug industry has thus come of age in India. IDPL, HAL and the two units in Calcutta contributed to a turnover of about Rs. 100 crores during 1979-80. They are producing over 50 bulk drugs and over 100 formulations and more new items of formulations are also expected to be marketed by them in keeping with the trends in the market. The present range includes in large measure highly essential and life saving drugs. The present bulk drug production is about 26 per cent and formulations is about 6.3 per cent of the total in the country. According to the New Drug Policy, Government have assigned a leading role to the Public Sector in the production and distribution of drugs and pharmaceuticals. Towards this end it is expected that the bulk drug production by public sector by 1984-85 will go upto Rs. 215 crores from about Rs. 59 crores in 1979-80 and formulations to the extent of Rs. 330 crores from about Rs. 72 crores in 1979-80. To reach this, the estimate of the Working Group on Drugs & Pharmaceuticals is that an investment of Rs. 140 crores for bulk drugs and Rs. 20 crores for formulations will be required during the Sixth Plan.

Steps to Curb Smoking

TO discourage the smoking habit, various steps have been taken by the State and Central Governments.

The Cigarettes (Regulation of Production Supply and Distribution) Act, 1975 provides certain restrictions regarding trade and commerce in the production, supply and distribution of cigarettes. Several States have passed laws prohibiting juvenile smoking and smoking in public places like cinema halls, buses, etc.

The Central Health Education Bureau has undertaken, through publication and mass media, massive publicity campaign against the hazards of smoking. The Ministry of Health and Family Welfare have suggested to the Ministry of Education that a chapter on "Harmful Effects of Smoking" may be prepared by the NCERT in consultation with the Central Health Education Bureau for inclusion in the School level text books of the various States/Union Territories. The tax burden on production and sale of cigarettes has been increased. All India Radio and Door Darshan do not accept any advertisement regarding cigarettes and other tobacco products. The Indian Airlines have extended the "No Smoking areas" and stopped the permissive announcement "You may smoke, if you wish".

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Nehru on Public Sector

OUR mind was clear, not because of certain theories, though, of course, there is theory behind everything, but essentially because of certain practical considerations. We think that in India, as it is today certain basic industries, the key industries, should be under State control partly because it is danagerous for those key and basic industries to be controlled by private interests and also for other reasons which I need not go into. As for the other industries, they can be under private control, but remember again that when a state plans its industrial or other developments, planing itself involves a certain measure of control or direction from the State.

Why Two Sectors ?

It is obvious, in a country as undeveloped as ours, that we cannot progress except by enlarging the public sector, and except by controlling the private sector at important points. I cannot obviously go into the question of where the line should be drawn. But the line will ever be a changing one, because the public sector will be a growing one. The important thing is that the strategic points must be controlled by the State. Having said that, I shall add : If you leave something to the private sector, give them freedom to function within those strategic controls; it is absurd to ask them to function, denying them room to function, denying them the initiative.

The Middle Way

It is inevitable that those countries, which do not want either of the two extremes (capitalism and complete state control) must find a middle way. In that middle way, there is bound to be more emphasis on some factors than on others but obviously a middle way or a mixed economy, if you like to call it that is inevitable. That is not a dogma or an axiom which can be applied to any country regardless of its conditions.

New Plants for Public Sector

It seems to me a far better approach to the problem for the State to concentrate more and more on new industries of the latest type and to control them in a large measure, because then the resources of the State go towards further progress. Such controlled progress is better than merely trying to get hold of something which exists. Of course, one sometimes has to do that too.

Two Basic Criteria

In regard to the private sector and the public sector, I think the criteria should be basically two. One is to have as much production as possible through all the means at our disposal, and the second is prevention of accumulation of wealth and economic power in individual hands. If we have only the first one, it may lead subsequently to unsocial, undesirable and harmful consequences, Therefore, we must aim right from the beginning and all the time at the prevention of this accumulation of wealth and economic power.

Why the Conflict

The whole of our land is in the private sector. Our small industries are very largely in the private sector. The whole conflict comes—not conflict exactly but a certain pull—for two reasons. Certain basic industries are in the private sector; some of the great industrialists want more of them because not only they might prove to be very profitable but because it gives them economic power. I think it is highly objectionable that economic power should in the hands of a small group of persons however able or good they might be. Such a thing must be prevented. That is our broad approach. With this approach, the Planning Commission have to deal with questions of production, both in the private and the public sector, and with the question of preventing accumulations. . . .It is well know that ever since we started our plans, private enterprise has prospered as it has never done previously, for the simple reason that they have certain assured things to look to and they have proved profitable.

Checks and Freedom

I have no doubt that the normal governmental procedure applied to a public enterprise will lead to the failure of that public enterprise. Therefore, we have to evolve a system for working public enterprises where, on the one hand, there are adequate checks and protections, and on the other, enough freedom for that enterprise to work quickly and without delay. Ultimately it has to be judged by the results, though one cannot judge a government by financial results alone. In judging a big enterprise, one has to judge by final results. Of course, there are checks and audit and all that, but checks come afterwards. The chief man on the spot must be able quickly to do what he wants to do.

Management

Normally it is not easy to find competent, trained persons to man these rather very specialized and high-class jobs. We can have them from civil services. We can have them from private industry. The normal civil service or administration service approach is not quite the same as the approach required for a big industry. The methods of work in governmental and civil services are somewhat different. The Government functions in a particular way, in a rather static way usually. There is so much in it that the bright person gets frustrated about. We can have bright persons from private industry to manage public enterprises. Again, the question arises whether the private enterprise approach to mind is the same as the approach of mind required for public enterprise. There is a difference between the two. In a public enterprise one has to have the background of thinking and training of public enterprises, and of the basic objectives of planning.

Sixth and Annual Plans of the States

THE outlay of the Sixth Five Year Plan of Meghalaya is Rs. 235 crores and that of the Annual Plan 1981-82 is of Rs. 46 crores. Important projects in the power sector included in the State Plan are the Myntdu Hydro Electric Project in the Jaintia Hills and the on-going project Umiam-Umtru Stage IV.

Gujarat will have the Sixth Plan outlay of Rs. 3,660 crores. The Annual Plan 1981-82 of the State has been finalised at Rs. 631.5 crores. In the State Plan special emphasis has been put on the Narmada Irrigation Project for which an inter-State Control Authority has been constituted. The work is to be completed in 12 years. Power and Irrigation sectors in the State Plan have been assigned about 52 per cent of the proposed outlay in the Sixth Plan.

THE outlay for the Sixth Five Year Plan 1980-85 for Uttar Pradesh has been fixed at Rs. 6200 crores and for the 1981-82 Annual Plan at Rs. 1075 crores. Emphasis would be on power, irrigation including flood control and minor irrigation.

The outlay for the Sixth Five Year Plan 1980-85 for Rajasthan has been finalised at Rs. 2025 crores and for Annhal Plan 1981-82, at Rs. 340 crores. The major emphasis in the Plan will be on development of irrigation potential, promotion of agriculture and allied sectors.

The Sixth Five Year Plan size of Tamil Nadu has been finalised at Rs. 3,150 crores. The outlay for the Annual Plan 1981-82 will be Rs 514 crores. Under the Sixth Five Year Plan emphasis will be on increase in production of foodgrains, rice, sugarcane, cotton and oilseeds.

Madhya Pradesh will have Sixth Five Year Plan of the size of Rs. 3,800 crores. The outlay on the Annual Plan 1981-82 of the State has been finalised at Rs. 640 crores. The maximum emphasis in the State Plan has been put on irrigation, power and agriculture and allied sectors which have been allocated 86 per cent of the outlay.

The Sixth Five Year Plan of Goa, Daman and Diu has been finalised at Rs. 192 crores. The outlay on the Annual Plan 1981-82 of the Union Territory will be Rs. 34.5 crores. The highest priority in the Plan of the Union Territory has been accorded to irrigation and flood control sector, which accounts for about 23 per cent of the total outlay.

Himachal Pradesh will have the Sixth Five Year Plan size of Rs. 560 crores. The Annual Plan 1981-82 of the State has been finalised at Rs. 100 crores. In the Sixth Plan, water and power development agriculture and allied services transpor and communications and social and community services have been allocated 30, 27, 20 and 18 per cent, respectively.

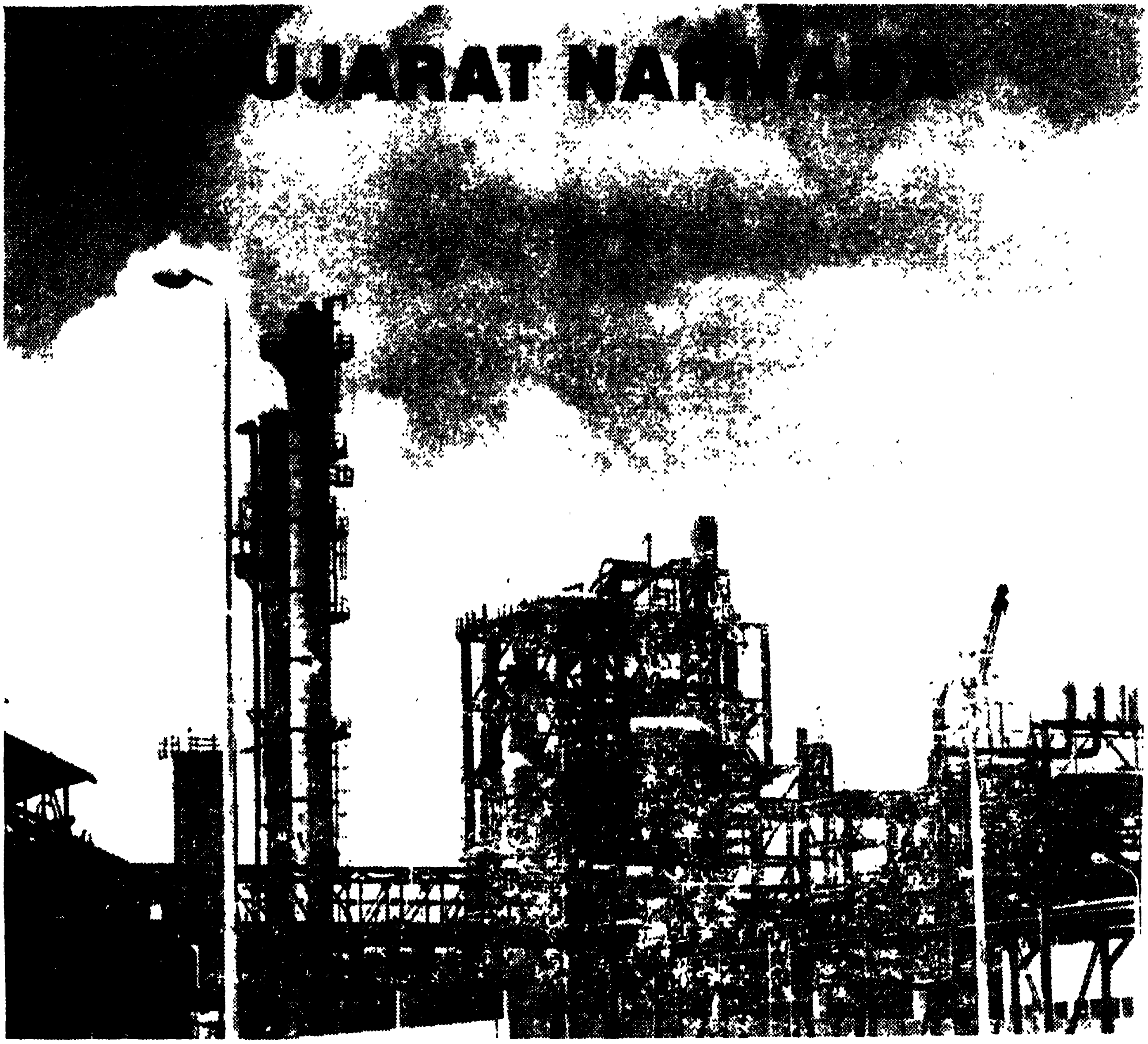
The Sixth Five Year Plan size of Manipur has been finalised at Rs. 240 crores. The Annual Plan 1981-82 outlay has been fixed at Rs. 43 crores. In the State Plan, emphasis has been put on agriculture and allied sectors. The target for foodgrains production has been fixed at 4.50 lakh tonnes.

The size of the Sixth Five Year Plan of the North Eastern Council (NEC) will be Rs. 315 crores. The outlay on the Annual Plan 1981-82 of the Council has been fixed at Rs. 65 crores. The Plan of the NEC approved by the Planning Commission includes on transport side, completion of the Brahmaputra bridge on Sylhet development of about 1000 km. of inter State/UT roads and ropeways and inland water transport. The power schemes include completion of the Kopili Power Project, taking up of Garo Hills Thermal Project (2X30 MW) and some other power project of inter-State/UT importance.

These were agreed when the concerned Chief Ministers/Governor met the Union Minister of Planning and Labour and Deputy Chairman, Planning Commission, Shri Narayan Datt Tiwari and Members of the Commission recently.

Shri Tiwari said that within the financial constraints the Planning Commission would help backward States like Meghalaya to the maximum possible extent. He also urged the need for better evaluation and monitoring of Plan schemes. He commended Gujarat on her good record of Plan implementation. He also appreciated the efforts made by the State to mobilise additional resoures for the Plan schemes. The buoyancy in the economy at present, he said, could be further utilised to expand the resource-base of the State. Referring to the problems of the North East, Shri Narayan Datt Tiwari appreciated the need for regional approach to the problems of communications, power and minerals utilisation and the role the NEC could play in this regard.

The State Chief Ministers and the Governor of the NEC said that they would undertake mobilisation of additional resources in order to sustain the bigger Annual and Sixth Five Year Plans. □



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Prime Minister on Public Sector

THE Public Sector can claim no virtue unless it functions effectively as an instrument of production and development and as a creator of new wealth . . . Many of the difficulties of the public sector belong to the gestation period itself. Faulty planning with regard to concept, size, location, raw materials, design, choice of processes, equipment, personnel, contractual arrangements, supervision, co-ordination time-schedules, etc., has resulted in cost escalation and delay. Over-capitalisation, over-staffing, incidentally, adding to township costs, inadequate work-study, lack of delegation of power, the application of secretarial codes and procedures to commercial undertakings, faulty system of financial control and audit, and the lack of a well-thought-out personnel policy, constitute another set of problems. The proper programming of orders, pricing policies, quality and cost controls, research and design development and the structure of management are other factors which need looking into. Labour relations have not always been satisfactory. . . . As I said, the final test lies in profitability, service and growth. If the public sector cannot pass these tests, then there is no meaning in it.

Management

In fact the basic weakness of industrial undertakings in the country, whether in the private or the public sector, is that they are under amateur management. If we have general administrators managing industrial enterprises under the public sector, we have family groups dominating the private sector. The aim should be to bring both under competent professional management dedicated to the objectives of economic growth and social justice. Government have already taken some steps to bring about some managerial evolution in the public sector. We should expect the private sector to initiate similar action in their own sphere.

The public sector must justify itself by its efficiency. I agree that a basic requirement for increased efficiency in the public sector is the induction of professional expertise instead of mere administrative talent. We often speak of the constraint of resources. This is real enough, but even more real is the shortage of managerial ability, a shortage shared by public and private sectors alike. It is easier to raise capital, to build buildings and to instal machinery than to develop the managerial skills necessary to run a plant at a high degree of efficiency. It is easier to buy technical know-how than to develop it ourselves. It is harder still to unite technical and managerial know-how under the same roof. For tasks which demand initiative, comprehension and competence, we must have the best men, from wherever we can and whatever be their background—whether they are in the public or in the private sector.

Industrial Relations

There is scope for the improvement of communication between management and workers in public enterprises. I do not think that it is enough to give workers representation merely on the boards of management. We need to involve them more intimately in the problems of the enterprises at various levels.

We constantly hear of the need to check the concentration of economic power in the hands of a few in the private sector. I believe that by far the most effective means of checking these trends is to enlarge the role of the public sector and to upgrade its efficiency. The formidable managerial problems of the public sector need immediate attention. But the acceptance of a greater measure of discipline and dedication on the part of labour in public enterprises is also an essential element in our strategy to make the public sector the pace-setter in our economy.

Pricing Policy

Efficient management and evolution of a rational pricing policy for public sector enterprises, whether under the State or the Centre, should be an important element in our programme for the mobilisation of resources. . . . Apart from improvement in the day-to-day management and fuller utilization of the potential already built up, there is clear need to ensure that we secure a reasonable return on investments already made through appropriate revision of irrigation rates and power tariff. It is only by improving the rate of return on the investments already made that we can generate sufficient resources to maintain even a minimum tempo of development in the years that lie ahead.

Subsidies

As far as possible they (Public sector undertakings) should certainly live upon their own earnings. But earnings cannot be the most important thing. Otherwise whole areas of production would be neglected. Many of the things which have been produced in the public sector are essential to the building of an infrastructure which will then provide opportunities even to the private sector..... It is not only the public sector which has been getting subsidies. We are giving incentives practically to every area of private enterprise. Equally that should stop too. So, all this is part of a much bigger question. You simply cannot separate one area from the overall situation.

Bank Nationalisation

An institution, such as the banking system, which touches and should touch—the lives of millions, has necessarily to be inspired by a larger social purpose and has to subserve national priorities and objectives.. Certainly, public ownership of the major banks will help to eliminate the use of bank credit for speculative and unproductive purpose. What is sought to be achieved through the decision to nationalise the major banks is to accelerate the achievement of our objectives—the purpose of expanding bank credit to priority areas which have hitherto been somewhat neglected such as (1) the removal of control by a few, (2) provision of adequate credit for agriculture, small indutsr and exports; (3) the giving of a professional bent to bank management; (4) the encouragement of new classes of entrepreneurs; (5) the provision of adequate training as well as reasonable terms of service for bank staff still remains and will call for continuous efforts over a long time.

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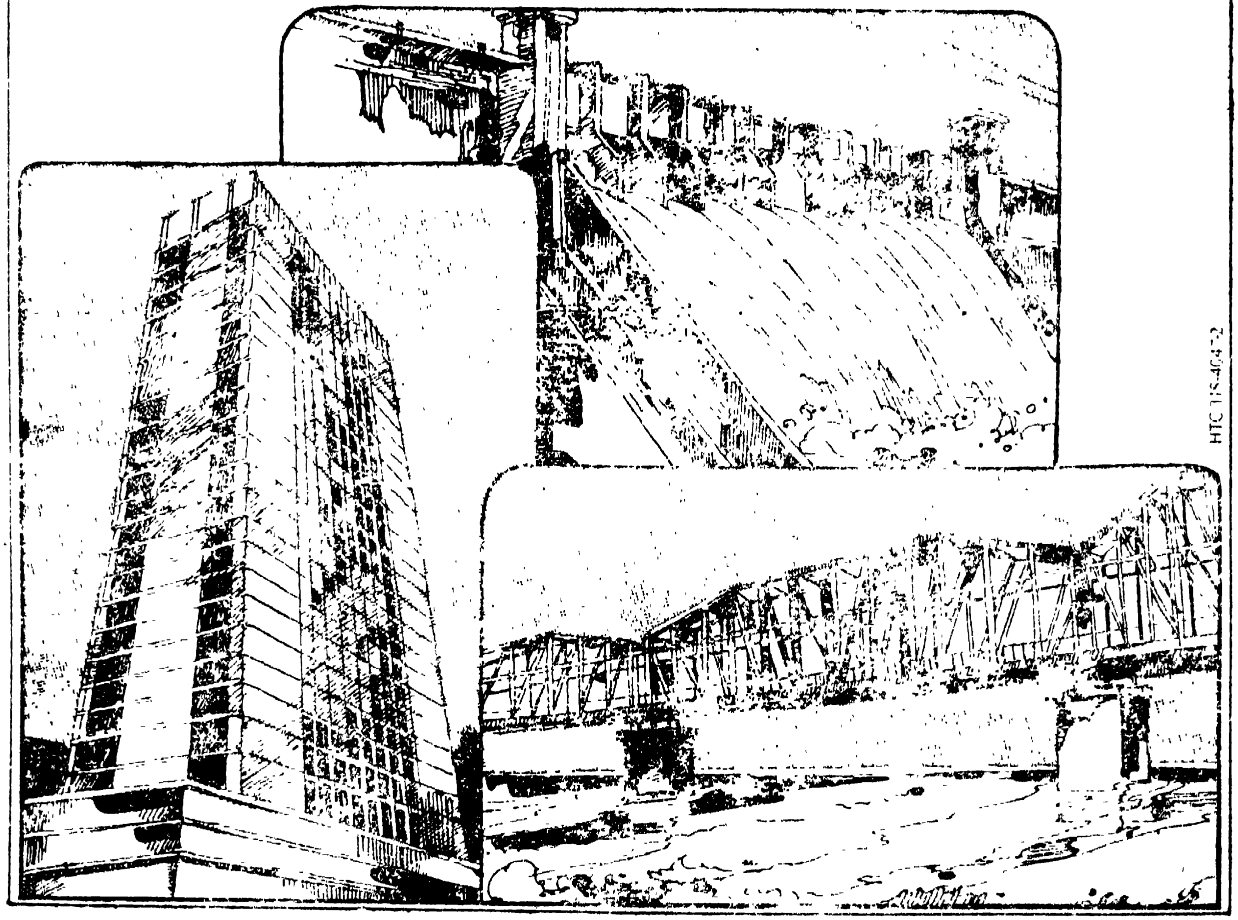

Role of the Public and Private Sectors in Developing the National Economy

K. N. Modi*

IT has been found necessary by most developing countries to set up state enterprises to bring about rapid economic growth. In a "mixed" economy, ideally, both the private and public sectors should fortify one another and operate as integral parts of one and the same organism to optimise growth. The state intervention of an active kind has become a cardinal feature of the Indian economy since the mid 1950's. The government committed itself to the philosophy of development planning and target-oriented growth with regard to industrialisation and social welfare. The basic feature of this guided industrialisation is the evolution of the mixed economy with control and command in the hands of the state. There are two dimensions of this feature : (a) the creation of public sector in the industrial infrastucture and (b) the deliberate direction of economy and production planning for long-term development.

The public sector came into being with the adoption of the Industrial Policy Resolution in 1948, which was subsequently followed by the Industries (Development and Regulation) Act of 1951. This demarcated the respective spheres for publlic and private sectors. The Industrial Policy Resolution of 1956 classified industries into three clear categories, namely, (i) industries, for which the state will be responsible for establishment of all new units with monopoly in railways and air transport, arms and ammunition and atomic energy (ii) industries, which will be progressively state-owned and in which the state will generally take the initiative in establishing new undertakings Private sector enterprise will, however, have opportunity to develop in this field; and (iii) remaining industries, whose development will be left to the initiative and enterprise of the private sector, though the state could start any industry even in this category.

1970—Water-Shed Year

With the commencement of the planning era in 1952 and the acceptance of socialism, the attention paid to these two sectors gradually became unequal The first Five Year Plan was merely a collection of individual projects. The Second Plan based its investment strategy on development of a leading sector comprising heavy industrial complex with its industrial linkages stimulating growth in complimentary activities. The public sector was assigned a key role in India's development programmes. The setting up of heavy and basic public sector industries with long gestation periods involved heavy investment and deficit financing There were considerable shortfalls in the achievement of targets during this plan. Several contradictions and distortions had in fact emerged. Though a core of capital goods industries had been built, part of the capacity so created had, tended to remain unutilised for lack of demand Subsequent experience has shown, that the capital goods sector with all its potential of enclave development had failed to reach the stage of self-sustaining growth under ownership and management of public sector. In fact, 1970 was the very year visualised as a water shed year in India's economic growth. Around early seventies it was anticipated that a great hump period of India's industrialisation would more or less be over and massive investments in heavy industry begun in 1956, would by their start yielding rich dividends in the form of large surpluses by the public sector undertakings. This has not happened because the working of the public sector undertakings resulted in recurring losses. The progress achieved during the Third Plan was even more uneven and unsatisfactory.

Since past investment did not yield any resources and non-developmental expenditure of the Governmet began to rise, the resources for planned investment began to be raised through additional taxation A transfer of resources, thus took place from the private sector to the public sector, as a result of which, the saving and investment capability of the private sector was severely eroded. Because of links in industry, the entire economy was affected. Thus, the Third Plan paved the way for a lopsided development of the public and private sectors in the industrial set-up.

The growing importance of the public sector can be gauged by their share in the successive national plan outlays:

Plan	Share in the plan outlay	
	Sector	Private Secto
	ercentage	Percentag
I	46.4	53.6
II	54.1	45.9
III	58.6	41.4
IV	60.3	39.7
V	66.0	34.0
VI	57.69	42.31

Policy Towards Private Sector

After the mid 1960's the Government's Policies visibly hardened towards private sector industries and this was reflected in the appointment of Committees to study monopolies in industry, licensing system etc. As a result of the recommendations of the Mahalanobis Committee, MRTP Commission and Hazari and Dutt committee Reports, we have today, numerous Acts and Amendments which control each and every activity of the private industrial sector. Controls and restrictions imposed by the Government with utter disregard to their snowball effects have come to be accepted by the private sector as a way of life. Price and distribution controls have thus become the major cause of perpetual shortage.

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*President, Federation of Indian Chambers of Commerce & Industry.

To a greater extent, the declaration of industrial growth in the recent years can be attributed to Government's decisions made in the past. It it no wonder that the industrial sector which recorded rapid and almost continuous growth rate at 8% per annum during the first 14 years of the plan period, thereafter grew at a very uneven and sluggish rate. In the 1970s the growth has been a mere 4% against the target of 10%, the last year, 1979-80, recording a dismal - 1.5%. An industrial growth rate of at least 10% has to be achieved this year for putting the economy on the road to recovery.

Acquisition of Private Sector Industries

In the late 1960s and early 1970s, expansion of public sector took place through acquiring industries from the private sector. Thus, coal mining, insurance, a part off textile mills and substantial chunk of the banking sector passed into Government's hands. These industries were expected to significantly improve after nationalisation. But unfortunately this has not happened. The coal industry even after a total investment of Rs. 1,120 crores and three revision in the price of coal has continued to make losses year after year. The banking sector is riddled with strikes while labour problems continue to affect the textile mills.

The performance of the public sector units hitherto has, thus, cast doubt about their ability to fulfil all expectations. Instead of being a source of finance to the national exchequer, they have become a financial drug.

> *To a greater extent, the deceleration of industrial growth in the recent year can be, attributed to Government's decisions made in the past.*

Prof. Sergei Tyulpanov of the University of Leningrad points out that, "only when the public sector operates efficiently and profitably, and makes a decisive contribution to the domestic accumulation of fund does it show its advantage over the private capitalist sector and ensure the fulfilment of the cardinal tasks of Indian development". To say the least, the public sector has neither been efficient nor profitable.

Rise in Loss-making Enterprises

Although public sector undertakings under Central Government grew from 73 in 1968-69 to 159 in 1978-79, the number of loss making enterprises also rose from 32 to 69 in the same period, and correspondingly the quantum of losses increased from Rs. 94.2 crores in 1968-69 to 516.71 crores in 1978-79. The Minister of State for Finance recently stated that as many as 69 public setcor undertakings have incurred a net loss of Rs. 236.56 crores (after tax) in the first quarter (April-June) of the year 1980. The highest loss of Rs. 40.32 crores was incurred by Coal India Limited and its subsidiaries followed by the Steel Authority of India Limited with a staggering figure of Rs. 38.19 crores. The list includes 16 public sector enterprises which made net profit in 1979-80.

> *An indstrial growth rate of at least ten per cent has to be achieved this year for putting the economy on the road to recovery.*

Any discussion on the profit making aspect of public units brings forth retaliation by the supporters of State enterprises. They point out that the efficiency of public enterprises lies in their ability to cope successfully with their social objectives. This approach has become a fetish. Apart from dealing with extremely vague and almost immeasurable social benefits, the advocates of this "broad" interpretation of public sector efficiency try to conceal their helplessness and inactivity. In other words, they try to justify the losses even if they were caused by unjustifiable causes. It is absolutely clear that unless the public enterprises make a profit, it will not be possible to provide a base for further investment and perform the functions assigned to it. It, therefore, becomes necessary for them to earn a rate of return of at least 12 per cent to make them viable. The public sector is, after all not in business only for fun.

Main Causes of Low Profitability

One of the main causes for the low profitability of public sector enterprises is poor capacity utilisation. Production capacity is not being put to full use because of improper use of equipment, poor organisation of supply and sale, limited demand due to their poor quality of products. There has been a decline, especially in respect of units in the range of over 75 per cent capacity utilisation in the year 1978-79 as compared to the previous two years. In 1976-77, the percentage of units with capacity utilisation 75% was 65%, 55% in 1977-78 and 47% in 1978-79. Another reason has been the enormous accumulation of inventories by these enterprises—mostly reserves of unrealised products and working capital. Inadequate availability of skilled technical personnel and employment of unnecessary labour to reduce unemployment leading to staggering of labour discipline has hampered the public sector in fulfilling its role in market regulation, development of ancillaries and transfer of technology and management expertise to small units.

Unproductive expenditure of the public sector enterprises has risen enormously over the years. An element of cost consciousness must be introduced in the management of public sector enterprises. Greater stress on professionalism, better utilisation of resources and productivity of men and material, improved financial and material management and an effort to reduce inventory level would all greatly help in improving the performance of the public sector.

Most of all, a certain degree of autonomy is needed which would ensure for the enterprise the necessary flexibility and freedom of action in carrying out their production and financial assignments.

The private sector, submerged as it is, in numerous controls and restrictions has proved itself creditable. While the public sector in 1977-78 made a loss of Rs. 91 crores on investment of Rs. 11,400 crores, the 1720 medium and large limited companies are estimated to have made an after-tax profit of Rs. 381.36 crores on the total capital employed of Rs. 13,043.79 crore. If due appreciation is given to the fact that the private sector has a complementary and not substitutive role to play in industrial growth then, it is necessary for the government to create a conducive environment for its meaningful contribution. Unless support measures are devised to encourage investment and monetary policy is modified, private sector cannot do much to expand its investment.

Fruitful Interaction

A mixed economy offers immense scope for fruitful interaction between the public and private sectors. For example, management cadre of the private sector is well known for its business efficiency and can be used by the public sector to improve production, sales and profit. To introduce an element of competition, areas now reserved exclusively for the public sector units can be thrown open increasingly to private units. This would, no doubt, work very well in industries where the public sector units are not up to the mark, for example, power. Public sector enterprises can be allowed to be managed by private sector firms on a contract basis. Thus, democratisation of management of public enterprises will be in public interest. The decision to issue some share of public units to the general public will, apart from ensuring vigilance by share-holders, increase accountability of these enterprises.

The private sector has an important and healthy role to play in preserving the base of a democratic society. Variety, diversity, spontaneity and competition all go to make a society rich. The success of democracy depends on the effective role played by its various constituent groups. There must be division and not centralisation of authority, a variety and not unanimity of opinion in economic, social political and administrative functions. For the perpetuation of democracy there is need for both the public and the private sectors to understand and accept each other's role. Only then will the country succeed in achieving rapid industrial prosperity. □

Power From Earth's Interior

Khabibulla Amirkhanov*

THE amount of heat contained in the 10-kilometre layer of the Earth's crust is several thousand times greater than the prospective resources of all fuel deposits discovered so far. In addition, geothermal energy has some advantages over traditional energy sources : it is ecologically clean and, most important, practically inexhaustible.

The use of the heat of the Earth's interior for energy-producing purposes has already started. More than 1.5 million kilowatts is the present installed capacity of geothermal power stations operating in the world. One of them, the Pauzhetka, has been in service for more than ten years now in Kamchatka.

On a wider scale the heat of the Earth's interior is used for industrial and agricultural needs, and for heating cities.

In some towns of Daghestan thermal waters are used for winter heating. The heat from underground "boiler houses" is used by every eighth inhabitant of Makhachkala (capital of Daghestan) and every second in Izberbash and Kizlyar. In our republic, thermal waters meet the requirements of more than a hundred enterprises, greenhouses and other installations. What is more, a unit of heat from the underground "boiler houses" is one-fifth to one-tenth as costly as that obtained at a thermal power station. Our autonomous republic has large deposits of thermal waters. We have knowledge of their depth of occurrence, temperature and mineral content. This information helps substantially the staff of the department concerned with the utilisation of the Earth's heat, which has been functioning in Daghestan for 15 years now. Similar departments are set up in the union republics of Transcaucasia, Kazakhistan, the Chechen-Ingush area, and the Stavropol territory.

Daghestan has been found to contain a number of areas with particularly large reserves of thermal waters. For example, not far from the village of Tarumovka, a well has been bored which produces 12,000 tons of steam and brine a day. At the mouth of the well the steam temperature is some 240 degrees Centigrade. It is planned to build a geothermal power station there, and also a factory to extract from the brine valuable elements, cesum, rubidium, boron, iodium and others.

In the Daghestan branch of the USSR Academy of Sciences an Institute of Geothermal Studies the first one in the world, has been set up. This institution works on solving comprehensively the problems connected with the use of heat from the Earth's interior.

Some 50 large deposits of thermal waters have been discovered in the Soviet Union. But the number of areas where the inexhaustible heat of the hot and dry interior can be used is even greater. But thermal waters are mineralised, which makes their use difficult. By injecting pure and salt-free water into the hot dry interior, we obtain it, after natural heating, in practically the same chemical state.

Scientists of our branch of the USSR Academy of Sciences have developed several methods of creating artificial fissures in the hot interior where water is injected. Work in this direction is continued by specialists of the newly established Institute.

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* Corresponding Member of the USSR Academy of Sciences, Chairman of the Presidium of the Daghestan Branch of the USSR Academy of Sciences.

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Industrial Relations in Public Sector

G. Ramanujamo . .

IN its estimates of financial resources for the Sixth Plan aggregating to Rs. 90,000 crore, the Planning Commission has taken 11,007 crore as the contribution of public sector enterprises. At the same time para 16 of the Sixth Five Year Plan Frame admits that :

> "a large number of Central and State Public Sector Enterprises are not yielding the returns which could be normally expected from them. Deficiencies in Management, as well as lack of appropriate pricing policies are responsible for this outcome. Major Central Public enterprises, including railways, steel and coal will have to generate much larger internal resources than they have done in the past."

If the public enterprises must be enabled to fulfil the great expectations and contribute more than Rs. 11,000 crore to the plan resources, it is not enough if deficiencies in management and lack of appropriate price policies are set right, but there must also be full utilisation of installed capacity in all public sector undertakings. They must also be assured of harmnious industrial relations. I propose to deal in this article with only the industrial relations factor in public sector undertakings.

Lower Man-Days Lost

The year 1979 witnessed a record number of man-days lost on account of industrial relations conflicts in the country. Out of the total number of man-days lost, the loss in the private sector was 304,40,000 days while in the public sector it was only 66,60,000 days. That is, it was a loss 4,281 man-days for 1,000 employed in the private sector, it was only a loss of 441 man-days for 1,000 employees in the public sector. That is to say the number of man-days lost in the public sector was actually one-tenth of the man-days lost in the private sector. We can take pride in the fact that the number of man-days lost in the public sector was thus relatively lower than in the private sector. But then we should not ignore another indicator in this regard, viz., that while the number of man-days lost in the public sector in 1978 was 43,50,000 only, it has gone up to 66,60,000 in 1979, i.e., by more than 50 per cent. It is imperative that we must not only arrest this trend of increasing number of man-days lost, in all indstries generally, more particularly in the public sector, but also bring it down substantially. All the more so as the net result of that contribution by the public sector by way of net surpluses is only marginal. This indicates that there is need for an in-depth study into all aspects of the working of the public sector, so that the public sector's contribution too in the industrial development of the country becomes substantial.

In this context, the setting up of a Committee under the chairmanship of Mr. Mohamed Fazal, a member of the Planning Commission, to go into the working of the Public Sector Undertakings, unit by unit, is a timely step in the right direction. The Committee, however, could be more effective if a labour representative also is associated with it in its studies as that could bring forth any industrial relations problem that might have contributed to the poor results in any public sector undertaking. It might also indicate the possible lines on which the performance of the Undertaking could be improved through improved industrial relations.

In 1979, the man-days lost in the public sector were one tenth of those lost in private sector.

Further a mere fall in the number of man-days lost cannot be taken as reflecting ideal industrial relations. In spite of the fall in the number of man-days lost there might still be a cold war between the parties. In other words, man-days lost might be less, but still harmonious industrial relations might be absent and there may not be enthusiastic cooperation between labour and management; and this, in turn, will affect the performance of the Undertakings. It should, therefore, be our endeavour not merely be bring down the number of man-days lost, but also to improve the quality of industrial relations.

Need for a New Culture

The culture of industrial relations in our country is based on 'conflict of interests' and consequently 'confrontation' between labour and capital becomes inevitable. Even the existing law on the subject is based on the 'conflict of interests'. We have found that this has not helped either to improve the quality of industrial relations or to enthuse the workers to cooperate with the management to put in their best for maximising productivity. There is, therefore, need for a radical change in the very basis of our industrial relations from the culture of 'conflict of interests' and consequent 'confrontation' to a new culture of 'community of interests' and 'cooperation'.

General Secretary, Indian National Trade Union Congress

To me, it appears that the culture of 'community of interests' is more natural and consistent with the realities than the outmoded culture of 'conflict of interests'. In the prosperity of the Undertaking lies the "community of interests" of both labour and capital. If the industry does not prosper, neither capital nor labour can be happy. Therefore, the prosperity of the industry or the undertaking should be the common objective of both labour and capital. Once this 'community of interests' is accepted, co-operation between labour and management follows as a logical consequence.

The absence of 'conflict of interests' and the pronounced presence of 'community of interests' are more manifest in the public sector; for here you do not have the traditional capitalist who wants to run an industry for his private profits, thereby coming in conflict with the aspirations of labour. Public sector should, therefore, give a lead for the transformation of the culture of 'conflict of interests' into a new culture of 'community of interests'.

With the acceptance of labour's right to participate in the management of industries, the new culture of 'community of interests' becomes natural in industrial relations. There have been frequent appeals by our leaders for a moratorium on strikes in the interests of the nation. But it has been our experience that such appeals have not received a favourable response. The reasons are not far to seek.

Alternative to Strikes

It must be remembered that normally labour will not resort to strike with a light heart. If it is presented with an effective alternative to strikes, responsible labour will naturally prefer that alternative. At present, the alternative to strikes is only adjudication. Adjudication remains long since condemned as time-consuming and frustrating. Labour by and large has, therefore, rejected this alternative. The other alternatives resorted to by labour in the name of 'direct action', such as go-slow, work-to-rule, and sometimes even gheraos, are even more undesirable. It should, therefore, be our endeavour to provide labour with an acceptable alternative, and that acceptable alternative lies in the 'voluntary arbitration'.

In industrial relations, conflict of interests should yield place to community of interests.

Strikes, lock-outs, work-to-rule, go-slow and gheros can never go with participative management, whereas voluntary arbitration will fit in with the scheme of 'participative management'. Indeed, 'voluntary arbitration should be an extension of the 'collective bargaining process' itself and arbitration must ensure a fair, final and prompt settlement of disputes. There should be no appeal against the awards of arbitrators and this might mean amending the law, for it has been held by the Supreme Court that an arbitrator's award is not different from that of an adjudicator. If that position were to continue, then arbitration will lose all its charm. The award of an arbitrator should be made final and binding on the parties and it should not, therefore, be on par with the award of an adjudicator which is subject to writs and appeals.

Voluntary arbitration should be accepted as the alternative to strikes.

Generally, employers are hesitant to accept arbitration voluntarily. Here again, the public sector must lead the way by making it the normal rule that all differences between labour and management which cannot be resolved by collective bargaining shall be settled by voluntary arbitration. In order to have a balanced award through the process of arbitration, it is desirable to have a 'Board of Arbitration' consisting of one representative of the employees and one of the management. If the members are unable to give a unaninous award, then the Umpire appointed by them shall decide the question and his decision shall be final and binding on the parties. Already we have a similar system of arbitration under the Joint Consultative Machinery for the Government employees and this system has been working well.

Bargaining Council

Successful collective bargaining presupposes the existence of a competent bargaining agent. In the context of multiplicity of unions, it has been somewhat difficult to choose a single bargaining agent. In fact, we have been stuck for too long with the controversy over the manner of choosing the bargaining agent. Between the traditional demand for 'verified membership' and the untried demand for 'secret ballot' as the means of choosing the bargaining agent, a better course appears to be membership verification through the 'check-off' system. Any union which has a substantial membership as revealed through 'check-off system' can be made the "sole bargaining agent". But, if, in certain circumstances, it is found that a single bargaining agent will not be able to deliver goods, then a 'bargaining council' of trade unions enjoying above a particular percentage of membership as revealed through the 'check-off system' may be set up.

But it is not merely the numerical strength that should be taken as the basis for such recognition. All unions which accept the new culture of 'community of interests' and 'cooperation' should alone be entitled to participate in the trial of strength through 'check-off system', as we will then be assured of quality-based strength, which is very necessary.

It is often said that the public sector should function as an ideal employer. I agree. But it will be impossible to have an ideal employer in the absence of an ideal union. In order, therefore, to make the public sector management function as an ideal employer, it is also necessary to improve the quality of our trade unions, and towards this end there is need for some quality-control of trade unions.

Revamp Bureau of Public Enterprises

Collective bargaining to succeed must be carried on in good faith by both the parties. Generally managements of public sector undertakings plead helplessness in coming to a settlement because of a considerable degree of back-seat driving. Sometimes, they are being put in a straight jacket by the 'Bureau of Public Enterprises' with very little scope for bargaining. I quite see the need for a machinery like the 'Bureau of Public Enterprises' to co-ordinate the policies of public sector management, and, as far as possible introduce a degree of uniformity in standards by giving them proper advice and guidance on all aspects of the working of the public sector undertakings. But such advice and guidance cannot be given by bureaucrats in the Finance Ministry. The 'Bureau of Public Enterprises' itself should be revamped and manned by experts in the different disciplines, such as materials management, production management, marketing management, financial management and personnel management. Such a re-organised 'Bureau of Public Enterprises' will be better equipped to advise the public sector from which so much is expected.

Humanise Management

The public sector should not deteriorate into a bureaucratic sector, more so in the field of industrial relations. Therefore, there is need for humanising the management machinery to enable the management to evoke a more favourable response from the workmen and get their maximum co-operation. Those in charge of public sector managements must develop qualities of leadership and must function as the leader of a team so that they command the respect, affection, confidence and cooperation of the workers whom they are called upon to lead.

The Bureau of Public Enterprises should be revamped and membered by experts in different disciplines.

The middle-management personnel also require a degree of protection from their superiors. Otherwise, they will also turn out to be mere "yes-men", and that may not conduce to improve either the efficiency or facilitate the introduction of innovative management practices.

In short, the public sector must provide the leadership and function as the vanguard of a new industrial relations culture in the country. At the same time, the trade unions operating in the public sector also should change their attitudes and approach, modernise themselves and imbibe the new culture and regulate their conduct voluntarily to meet the growing demands of the nation. □

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Development of Backward Areas: Role of Public Sector Industries

B. Sivaraman*

UNDER the Industrial Policy Resolution, various sectors of industries have been reserved for the public sector. Particularly basic industries like steel, coal, certain chemicals and so on have been reserved for the public sector. The state has also participated in a big way in exploitation of raw materials for industries such as cement production and paper production in order to make up the lack of private enterprise in these sectors over some time. As a definite policy, the state has dispersed the location of the public sector plants, of course taking into consideration the economic location. As a result, a large number of public sector industries have come up in what may be called fundamentally backward areas like the tribal areas, drought prone areas and hill areas. Whilst dispersal of public sector industries has been a definite policy, there has not been a clear policy as to how to make the public sector factories the nuclei for development of the backward areas.

The ordinary man in the street expects that by the location of a public sector plant in his district or in his State somehow people of the State and the area around about the location will benefit. Experience over the last three decades has shown conclusively that merely expecting a factory location would somehow develop the area or improve the economy of the rest of the State is not enough. There has to be a conscious policy to see that the public sector industries take prominent part in developing the hinterland and there has to be a parallel policy in the various States to prepare the infrastructure and the ground for enabling their public to take benefit out of the location. When the Rourkela Steel Plant was conceived and started in 1951, 35,000 acres of land was acquired though the factory and the townships would not have required even half that area. The general manager of the plant at the initiation, Shri S. N. Majumdar, took the view that the rest of the area was necessary for developing vegetable garden, horticulture, animal husbandary and so on for meeting the requirements of the population which was expected to grow round the steel plant. The Government of Orissa agreed to the acquisition and expected that in due course the initial vision of the general manager would be translated into reality. Long years after, we see that the land which is not used by the factory is still lying without any benefit to the displaced population of the locality. In our country, visions are ephemeral and there is generally no institutional commitment to follow best of visions in the interest of the nation.

Japanese Example

What are the benefits that can accrue to the people of an area by the location of a massive public sector factory in their midst? A look at the Japanese experience would be extremely paying. In Japan, a major industry tries to estimate at the beginning itself which of the various parts going into the final production and which of the various serving industries and industries that may arise out of the basic material produced in the factory can be taken for production by smaller entrepreneurs. In some instances, the major factory is only an assembling factory where almost all the parts are produced in ancillary industries. To some extent, in this country an attempt has been made to try and follow this principle. The Hindustan Machine Tools have been trying to utilise ancillaries for production of various parts in their production chain. The Petro-Chemicals Complex in Gujarat tries to encourage subsidiary industries utilising the basic raw materials produced in the main Petro-Chemical Complexes. These are stray cases in the vast universe of the public sector. There has been no conscious attempt in the initial planning or in the execution to enable the public sector factories to play the role of encouraging industries in the area of location and round about. Our public sector factories have been planned to produce from a pin to an elephant so that the production may be completely controlled by the factory management. Varions issues were raised by the planners and by the executors when demands were made for ancillarisation that in this country such ancillarisation may not produce the parts in time and anyhow it will not be an economic venture. Points like double taxation in sales tax have been raised to prove their points. If an industrial giant in the world like Japan can plan and execute the ancillarisation programme so effectively and can compete in the world markets with success, surely India can also, if it had planned its approaches correctly, spread ancillarisation very effectively. At least time has now come to dispassionately consider the prospects of ancillarisation by the public sector factories so that entrepreneurship can develop in its hinterland and the local population and entrepreneurs can get a look in into the prosperity that can accrue.

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Hinterland Neglected

In our public sector not only the factory has to be built from scratch but all amenities and housing for its labour, have all to be provided by the public sector factories. Thus the planning of the entire urban complex is financed generally by the public sector factories and it has full freedom to plan the environment. A large urban settlement requires various services to the households in transport and in maintenance services which if they had been similarly planned and passed on to the local entrepreneur, lot of people in the hinterland would have got employment because of the factory and would have got the opportunity of earning far higher wages than they were doing in the backward areas. The Rourkela vision was a part of this idea. It never matured. There was not even a vision in many of the other places. A time has come, therefore, to examine what sort of policy will be required in future to develop the hinterland and its people wherever public sector projects are to be started. How are the projects to be designed so that maximum benefit can go to the area round about and the State in which it is located ?

It is not that public sector factories are not buying intermediates and primary parts from small industries and medium industries in various parts of the country. It was estimated roughly that about 800 crores worth of ancillary production was being purchased a couple of years ago by the public sector factories in the country. These purchases are made from many corners of the country from small and medium industries located in many parts. Industrial development in the country has been a matter of history and is generally skewed in nature and concentrated in and around certain townships like Bombay, Madras, Calcutta, Delhi and so on. The small industries and medium industries are concentrated in industrially developed complexes in the country. Very few of these industries are really located in the backward areas of the country. This general principle of purchasing by tender anywhere without a conscious effort to develop ancillaries as in the Japanese method has thereby led to very little benefit out of public sector factory to the hinterland around the factory. Can there be an attempt to consciously develop ancillaries in the backward areas to supply materials to the public sector factories ?

For the purpose of various facilities under the licensing procedures and supply of raw materials, etc., ancillary units have been defined recently to cover any unit with an investment in plant machinery of less than Rs. 25 lakhs which manufactures parts, components, sub-assemblies or intermediates, rather than services and markets 50 per cent of its output to other units. This limitation of Rs. 25 lakhs itself is artificial. There can be ancillary industrial units which have plant machinery worth more than Rs. 25 lakhs but which produce only parts for some other major industry to absorb. The apanese method is to tie an ancillary to major producer so that the major producer buys his requirements from those ancillaries only. Thereby a wide complex of industrialisation takes place. The present method of buying ancillary products from all over the country shows clearly that distance of the supplier from the location of the factory is not a very relevant factor in the economics of production. Thus, ancillaries can be said to be quite capable of being footloose industries—i.e. they can be located wherever convenient as long as transport from the ancillary to the factory can be organised without difficulty. Production in public sector factories will be rising and new public sector factories will be located year after year as the economy expands. Whilst some rationalisation in the ancillary purchase system of the public sector factories can be introduced to ensure that more and more of their purchases are related to the tied ancillaries, it is anyhow possible by strict planning to see that the additional quantities required in future are definitely earmarked for production and supply by tied ancillaries. Though this will not be a complete answer as in the Japanese method a time has come to start this process so that public sector factories really give benefits to the hinterland. The distance factor between the ancillary and the factory not being very relevant even if a public sector factory is located in a forward area, the nearest backward area can be chosen for location of the ancillary industries. A conscious policy decision in this manner is now required.

Policy Not Implemented

It is not that the country had not thought about this problem. In the early sixties a conscious decision was taken by the Central Government that public sector factories must encourage tied ancillaries. The policy was reiterated in 1970 and was put into active operation when Shri T. A. Pai was the Minister for Industrial Development at the Centre. With all that it was found that the pace of ancillarisation was very slow. In 1969-70, the supplies made by tied ancillaries were of the value of Rs. 6.60 crores for the whole area. It rose to Rs. 45 crores in 1976-77. In 1977-78 there was a jump to Rs. 78 crores. Even the jump in 1977-78 brought the figure to a level which was only a small fraction of the total ancillary purchases of more than Rs. 800 crores by the public sector factories.

The purchases made by the public sector factories from their tied ancillaries are just a fraction of their total purchases.

The basic concept of tied ancillary was that the public sector factory should identify the entrepreneurs who would put up the ancillary factories and agree to supply a certain quantity of intermediates. The price was to be fixed by negotiations and was to be working for a time before any change is contemplated so as to give the ancillary time to settle down. Technical expertise was to be provided to the ancillary industry and quality control was to be established so that rejections were very few. Raw material supply was to be made by the parent factory as scarce raw materials are difficult to get for a small industry. Unfortunately, not only were these salutory principles not observed but various difficulties arose in the relationship. The report on 'Industrial Disposal' by the National Committee on the Development of Backward Areas has the following to state on the subject :—

"Analysing the situation, the relationship suffered from the following ills and problems :

- (i) Irregular leading pattern and often inadequate work load causing dislocation of production.
- (ii) Frequent change of orders in quantity and specifications—disturbing production schedule and calling for changes in designs, toolings, etc.
- (iii) Absence or pricing formula and exposing ancillaries to undesirable open market competition.
- (iv) Reluctance of management to enter into long term contracts with ancillaries, making it difficult for the latter to do long-term planning.
- (v) No institutional arrangement within the public sector undertaking to tackle the problem.
- (vi) Delays in inspection and acceptance of items offered by ancillaries resulting in consequent delays in payment in turn affecting profit margins of ancillaries."

It may be seen that there has been a lukewarm approach to the entire concept of tied ancillaries. The programme as it was worked obviously put the ancillary entrepreneur at the mercy of the major factory and its purchase organisation. Prices were not properly fixed and there was a reluctance to enter into long-term contracts whereas the public policy was to make them do so. Delays in inspection and acceptance loaded the ancillary entrepreneur with loans taken for holding on to stocks. All told, even though the national policy may have been stated, in actual working, a terrible reluctance on the part of the public factories has been noticed.

In 1977-78 the Department of Industrial Development took the leadership and through the Bureau of Public Enterprises sent out teams comprising senior officials of the BPE and of the administrative Ministries along with officials from the DCSSI by the SISI in the the states and the Director of Industries to visit various public sector factories and see whether the factories can be persuaded to follow the Government policy in a bigger way. This Committee had no authority to enforce any decision. Yet, it was gratifying to note that by their mere visit to these plants, they were able to push up ancillary purchases from Rs. 45 crores in 1976-77 to Rs. 78 crores in 1977-78. Had there been any effort by the Ministries concerned and the Department of Industrial Development to enforce on the public sector factories the national policy declared, surely much larger amounts could have been passed on to a tied ancillary system. A time has come, therefore to examine why the national policy cannot be effectively translated by suitable monitoring and compulsion wherever necessary so that the public sector factories may encourage ancillary industries in the backward areas.

Training and Credit

Whereas theoretical enforcement of the national policy by the Government of India may be expected to lead to the result we expect, the matter is not so simple. In backward areas, private entrepreneurship is lacking. Even a small industry today requires a capital of more than Rs. 25 to Rs. 30 lakhs allowing for the capital goods and the working capital. The experience of the small industries all over the country has been that the banking system has not been as free with loans to the small industries for capital goods and working capital as they have been with the large and medium industries. The problem will be still more acute in the backward areas where even the basic capital that the entrepreneur can put up will be much less than in the forward areas. The prospect of locating tied ancillaries of the public sector projects in the backward areas with a view to giving benefit to the backward areas cannot be realised unless entrepreneurship is developed in the backward areas to take advantage of the opportunity and the credit system is suitably tuned to remove the difficulties of entrepreneurs' margins to make up for the difficulty to raise basic capital in the area. Entrepreneurial development and training of local people is a primary necessity. The report on 'Industrial Dispersal' of the National Committee on the Development of Backward Areas has expanded on this thesis as follows :

> "Entrepreneurial development and training has been undertaken by many agencies but with mixed results. The Gujarat experiment has been studied in detail. Though this experiment may not be completely replicable, some of its features are worth noting.
>
> (a) The programme involves an elaborate selection procedure to ensure that the chosen trainees are suitably motivated and achievement oriented.
>
> (b) The training programmes for inexperienced trainees emphasise the need to acquire operating experience.
>
> (c) The preparations for setting up a project are an integral part of the training system in which the candidate prepares a project report which later forms the basis for raising finance.
>
> (d) The programme is guided by all the corporations involved in industrial promotion which helps to ensure their interest in assisting the trainees to realise their projects.

The selections of entrepreneurs in Gujarat fall broadly into the following categories :

- (i) People who already have an industrial background either having run an industry which is close to the field selected or who have worked at lower levels in industry ;
- (ii) People from traditional trading families who are aware of marketing possibilities of the goods to be produced or have contracts with other families outside the district and the State who deal in such commodities and can help to tie up marketing ;
- (iii) Technicians and professionals who understand the technology of the industry they have selected but may lack previous entrepreneurial experience.
- (iv) Others.

"The necessity for a suitable selection process is established. In the first instance, it is desirable to follow the priorities of selection thrown up by Gujarat experience. A point may be raised that in the backward areas it is difficult to get entrepreneurs from the first two classes listed above. That is not so. Backward areas have today enterprising pioneers, not necessarily related to one group or caste, who exploit the raw material markets of the area which are substantial. Similarly trading enterprises exist to meet the consumer requirements of the backward areas. These acquire a good judgement as to what will sell and what can be promoted, and what will not sell. What is necessary is to spread the net wide and add effective propaganda for which the project group recommended by the Committee in their report can be used at the field level. It may be felt that entrepreneurs of the first class, viz., those already running an industry elsewhere or engaged at lower levels in industry elsewhere, may not be found in backward areas. One often forgets that many of our backward areas because of the widespread education, have competent technologists who for lack of opportunity in their home district, or State, pioneered industries in other areas or took employment elsewhere at middle levels. If entrepreneurial promotion is extended to attract such people back to utilise their talent in the backward areas, the problem is solveable. The third class is even now available in the backward areas because of the spread of technical education and special facilities to the backward areas. In case of this class, they will lack the basic background of the first and second class and will require the continuing attention of the State Industrial Development Organisation".

The same report has dealt with the problem of margin money as follows :—

> "The Gujarat study shows that even in schemes where 100 per cent finance was permitted, entrepreneurs had to find on average12-25 per cent of the fixed cost. In the case of working funds the dependence on own resources was greater. In the backward areas it is too much to expect that we can find volunteers with such resources. The following aids are the minimum required :—
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> (1) Margin money for small industries will have to be lower in backward areas. The Committee would recommend that it may be so at 20 per cent of which 15 per cent will be available from the subsidy and the balance 5 per cent will have to be found by the entrepreneurs. The flow of subsidy and institutional resources to the entrepreneur must match with the flow of expenditure and there should be a suitable provision to cover pre-investment expenses also.
>
> (2) Margin money for working capital will have to be lower and should not exceed 50 per cent of the normal requirement, as specified by the monetary authorities. In addition, both term loans and production loans must be available as a package from the institutions so that the eternal wrangle on security can be overcome.
>
> (3) Both types of credit must be adequate for smooth operation There must be a regional body of arbiters in which the State promotion organisation, representatives of the SISI and the main banks of the area must be involved. In Muzaffarpur (Bihar) this sort of arrangement has given some relief.
>
> (4) Some arrangement will have to be developed to see that the enterprise gets paid in full promptly for the supplies to other industries and the public sector. Even good running industries collapse for lack of timely credit at favourable rates to bridge the delay. The Committee observes that, generally, the buyers exploit the small sector shamelessly in this matter."

It has to be noticed that without state and institutional intervention, public sector factories by themselves cannot develop the ancillaries in the backward areas so as to benefit the people of the backward areas. This limitation has to be understood.

Help to Local People

Public Sector factories can give another benefit to the people of the local area. The large complex with a large number of industrial labour and supervisors generally at a wage level much higher than in the hinterland can activise a tremendous amount of tertiary sector growth in the hinterland. Experience of Rourkela which has already been mentioned shows clearly that such a development cannot take place without somebody making the effort to tie up the opportunity with the people of the area. Many of the tertiary sector employments which are in the nature of services may be beyond the available skill of the people in the hinterland. At the same time, the people can acquire these skills by suitable training. Further, direct employment in the public sector factory can also give a high wage opportunity to people of the hinterland provided the people are suitably trained to be absorbed in the posts. Normally, between the conception of a public sector factory and its timplementation and coming to fruition there is a large time gap.

Joint efforts of public sector industries, government and financial institutions are necessary for developing ancillaries in backward areas.

This time gap is more than sufficient to give the necessary training to people of the hinterland to absorb the opportunities, thrown up by the public sector factory. Here again, it will be a joint effort by the public sector factory and the local administration to identify the beneficiaries, train them and get them absorbed. Some will be directly absorbed in self-employment services which the demand in the industrial complex throws up.

The Rourkela experiment shows that even though production of daily needs of the industry complex in vegetables, fruit, eggs, meat, poultry, etc., can be met by production in the hinterland, this may not take place suo moto. The normal tendency is for established marketing services to spread to these new settlements and expand their business rather than for entrepreneurship to start in the hinterland and avail of the opportunities. Here again is another sector where the result can be achieved only by a mutual agreement between the public sector factory and the local administration to develop the production and absorb it in the complex. □

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Public Sector and Economic Growth

K. Rangachari*

THE role of the public sector in economic growth has been a subject of controversy almost from the beginning of planning in India when it was adopted as a major instrument of development. The debate in the earlier stages was wholly ideological, the challenge about its relevance or suitability coming entirely from the advocates of free enterprise who feared that extensive state ownership in addition to the wide area of controls over the private sector would stifle market forces and increase the power of the bureaucracy. This line of opposition gradually weakened in view of the declared socialist objectives of the Government. It implied prevention of concentration of economic power and ownership of the means of production in private hands, a course for which there seemed to be general support at most political levels. It was also clear that the state was entering into the fields of basic, strategic and key industries besides the infrastructure services like irrigation electricity generation. In all these areas the requirements of capital and the element of risk were so large that the private sector was unlikely to venture quickly enough to make up for the long years of neglect before independence. Eventually as the steel plants, heavy engineering, chemical and defence industries came up along with multi-purpose projects railway expansion, the private sector found that far from being done out of business, they had a supplementary role in fulfilling public sector orders for construction and supplies, while also providing the goods required by the people who were working for the public sector and had benefited by the incomes generated by development expenditure under the five year plans.

All these considerations continue to be valid even today when the image of the public sector is not bright and its former critics now feel vindicated by the malfunctioning of many of the public sector units. No one will dispute that major irrigation, power schemes, railways communications will always remain the responsibility of the Government, though everyone will fervently hope that these will be managed with greater efficiency and due regard to the public interest than has been possible so far in the complex conditions of the economy in recent years. The scale of investment required for steel expansion, oil exploration and refining, petro-chemicals and fertilisers are well beyond the resources available to the private sector which is increasingly relying on the public financial institutions for a major part of their investment capital even in the areas now open to it. Facing this reality, leaders of the private sector now talk of the "national" sector, in which both the Government and the private sector are partners, the latter playing a junior role.

The Main Issues

Today the question is, therefore, not ideology or even the alleged inadequacy of the residuary role left for the private sector. The main issues regarding the functioning of the public sector enterprises are, firstly, their efficiency in operation not only in terms of returns on the investment but also in terms of the production of the goods and services for which the various enterprises were set up; secondly, their profitability in order to provide resources for further investment, or at least to prevent the resources raised by the Government every year from being devoted to subsidising their loses, while other new schemes lag behind for lack of investment capital; and, lastly, there is the question of improvement of their systems of accountability without prejudice to their functional autonomy, so that the social objectives behind the steady expansion of the public sector are achieved.

The main issues regarding the functioning of the public sector enterprises are, their effficiency in operation not only in terms of returns on the investment but also of the production of the goods and services for which the various enterprises were set up.

Immediately, the first problem has assumed great importance because the public sector, having deliberately sought and gained control over most of the "commanding heights" of the economy seems to have lost the power to command them. Unless it functions with greater efficiency, the public sector cannot have the necessary prestige of authority to act as the countervailing force against increasing concentration of economic power or control of the means of production in private hands, which was one of the major roles envisaged for the public sector. The crisis in the infrastructure services is now hampering the growth of the entire economy in both the sectors. Without adequate supplies of coal, electricity and transport, both public and private enterprises have to accept a low level of performance and low utilisation of existing installed capacity for production while inflationary forces are riding high. In these basic industries, the imediate need is more output or coal and power and improved transport whether or not the units concerned make profits. It could at least be said that if they produce more, the losses incurred by the public sector units can be partly offset by the economic and social benefits to the nation. The trouble seems to lie in deficiencies in poor management, and labour

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indiscipline, bad maintenance of machinery and equipment (which is the result of the two previous shortcomings) and a general feeling that the public sector has no need to justify itself by its performance standards because it can exist in its own right on grounds of social policy.

Unit-by-Unit Review

The Government has now ordered a unit-by-unit review of the problems of the public sector undertakings with a view to finding out the remedies and we can expect some solutions to emerge in due course, at least for a majority of the cases. A large number of units are reported to have been kept without top level personnel for long periods. It raises the question whether in spite of the institutes of technology and management set up in recent years, persons of the right calibre are not forthcoming for these onerous jobs. Unless suitable men are found and they are kept long enough in their posts with an obligation to show fulfilment of the objectives of each enterprise, it will be very difficult indeed, to ensure proper performance levels. One of the expectations of our early planners was that organised industrial labour will cooperate with efficiency and enthusiasm in the working of the public enterprises as they will be working for public interest and not for private profit. This faith has not been justified by events, judging by the tensions and law and order problems witnessed in the coal mining areas and the growing indiscipline on the railways. Thus the human factor at both the managerial and worker levels has to be improved to get the best results.

Next in order of priority is the profitability of the public sector enterprises. No longer can we deceive ourselves by the specious theory that the potential social benefits or the social objectives behind their existence make this problem of profitability of public sector enterprises irrelevant. For one thing, profits are an index of efficiency in operation not just for the private sector, though different standards may be adopted for the public sector for determining the appropriate levels of profit. Still more vital for the economy is the generation of surpluses for further investment in expansion or the setting up of new units. Since the bulk of the available resources in the last three decades have been invested in the public sector-of over Rs. 16,000 crores in the public sector undertakings, besides larger sums in those run departmentally like the railways and communications facilities—it is not being reasonable to expect that further resources for future investment should continue to be found through taxation or public borrowing because of the current scale of losses incurred by these undertakings. While on the one hand, the proposed investment in power capacity have to be large, State Electricity Boards incurred a loss of Rs. 418 crores in 1979-80; at that rate of cumulative losses during 1980-85 will amount to Rs. 3,000 crores. Irrigation projects and State road transport undertakings are likely to incur another Rs. 1,000 crore of losses. Hence, the Sixth Plan framework points out that (along with the reduction of subdidies), higher financial returns from public enterprises both at the Centre and the States offer the only substantial scope for generating additional resources, particularly when the limits to additional taxation have been reached.

One of the expectations of our early planners was that organised industrial labour will cooperate with efficiency and enthusiasm in the working of the public enterprises as they will be working for public interest and not for private profit. This faith has not been justified by events, judging by the tensions and law and order problems witnessed in the coal mining areas and the growing indiscipline on the railways.

Pricing Policies

It is true that the Government's pricing policies based on wider considerations have been the cause of some losses, a factor which is also operative in the private sector in the cement, drugs, paper and other industries. But this kind of subsidy for social or economic policy reasons is measurable and cannot be cited as a general argument for the present scale of losses. Secondly, the Bureau of Public Enterprises argues that most of the losses are to be found in the enterprises taken over from the private sector, the chief of them being the textile units, coal mines, some engineering concerns. In all these cases, the objective of public ownership was not employment generation but employment protection and it is a debateable point whether on balance it would not have been better to let several of the units close down and other avenues found for the labour thus displaced. Moreover, this explanation of the sickness of the private units does not fit in with the continuing losses of certain major public sector units set by the Government like the Heavy Engineering Corporation, the Mining and Allied Machinery Corporation, Hindustan Copper and the Fertiliser Corporation or the dismal record of the State Electricity Boards. More depressing is the fact that even when the remedies are known, it is difficult to apply them because of bureaucratic inertia or opposition from entrenched interests of workers. An example is the proposed separation of electricity generation from distribution and supply on which little progress has been made.

It is an immensely complex task before the Government for the success of which it needs the cooperation of the public and the States, besides support from its own personnel. It is unrealistic to expect the bureaucracy to rise to great heights all of a sudden to cope with the problems; nor will labour agree to transform its attitudes. The next two or three years can however, be utilised to delegate tasks and responsibilities to various agencies in both sectors. Managerial personnel in both sectors are doing commendable work in projects abroad where the obstacles are fewer, proving that they do not suffer from incompetence or other inherent weaknesses. The private sector can be asked to help wherever suitable since it can bring some flexibility to business operations without necessarily diluting Government ownership or control or the social objectives of the public sector. But ultimately the drive for greater efficiency should spring from a strong political will to achieve positive results, since the Government which owns the public enterprises need not brook impediments to the enforcement of its authority. ☐

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Public Sector Pricing Policy

Balraj Mehta*

WITH the expanding role of public enterprise in economic activity and management of the economy, the question of evolving a pricing policy relevant to it has assumed considerable importance. It has received special attention in the context of the losses that industrial and commercial undertakings in the public sector are found to incur and the need to generate surpluses for recycling the large investment which has been made in these enterprises for not only upgrading and expanding them but also for accelerating the overall rate of growth of the economy.

The "Framework" paper of the Planning Commission for the Sixth Five Year Plan (1980-85) lays special emphasis on the role of public sector enterprise in the overall resources scheme of the development effort that it projects. It cautions that taxation can now make only a limited contribution to the additional resource mobilisation effort required for the Plan and "if the public sector has to play its assigned role, conditions have to be created to enable it to generate larger resources for financing further expansion and development". In the alternative, inability of the public sector to generate adequate resources results in eroding the "resource base of the Indian fiscal system". This is only further underlined by the mounting burden of subsidies which are directly related to non-recovery of the costs of investment in public enterprise in such infrastructural facilities as irrigation, power and transport systems as well as in the production of such intermediate goods as stool and coal.

Earlier, in the draft five year Plan for 1978-83, the planners had pointed out that in determining administered prices in important sectors (in which private sector plays a role) the Government went by the norm of 10-15 per cent (net of taxes) as a fair return. It was, therefore, urged that public enterprise should aim at a return of at least 10 per cent as against hardly 4.8 per cent at present and for this purpose it would be necessary to allow price adjustments to the extent they might be required, consistent, of course, with proper norms of efficiency in the working of public sector enterprise.

Once, however, the commercial criterion of a reasonable rate of return is accepted and prices are accordingly adjusted for public sector enterprise—departmental or non-departmental other significant issues will have to be reckoned with. These are criteria that must govern investment decisions and the norms of efficiency, accountability and social responsibility that the management of public sector must be called upon to observe. There must be no ambivalence in official policy in these counts.

The tendency so far has been that while functional managers in public sector enterprises are called upon to show returns, both in physical and financial terms, they are placed in a wholly untenable position in rendering their accountability, and judgement on their performance is vitiated by irrelevant or extraneous considerations. Looking back, one will find it amazing that public sector undertakings should have been able to perform as well as they have done. In passing, it might also be mentioned here that whereas the planners thought it necessary in their "Framework" paper specifically to recommend that "frequent shifts of top management personnel needs to be avoided "to improve efficiency and secure returns, abrupt shifts and changes of management personnel have become a routine affair in the running of public sector enterprises.

The present pricing policy in public sector erodes capital and only helps the private sector.

But coming back to pricing policy, a basic principle that must be observed is that no part of the consumption of goods and services produced in the economy should result in a loss to the produces in the public or the private sector. In the event of a loss for the producer in the private sector, he will simply not produce such goods and services and will shift to others in which he can make adequate profit. To the extent administered prices sometime tend to peg prices at a level which is not considered "remunerative" by the producers, shortages are bound to arise in such products, which actually result in the private producer making his recoveries from what is euphemistacally called the "open" market. In this process, black money transactions thrive and the structure of relative prices is sharply disoriented and distorted and, in turn, disorient and distort the production, consumption and incomes pattern. When, however, price controls of this kind are clamped on goods and services produced in the pubIc sector, they result in losses for public sector undertakings and subsidies from the public exchequer which have to cover their losses. This too has its own deleterious efforts on the consumption and production patterns.

Who Benefits ?

The fact must be faced that the majority of our people eke out their existence at or below subsistence level. They have no access to goods and services with price tags on them even if they might be subsidised.

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* Correspondent, Economic & Political Weekly.

This position is graphically illustrated by the socalled "surpluses" which are often talked about to glibly even in such essential consumption items as foodgrains, course cloth and so on. The reasons for such phoney surpluses are obvious. There is no enough purchasing power with the mass of our proverty-stricken people. Who can benefit from price subsidies in this situation ? Unquestionably who can purchase available supplies and to the extent they can purchase them in the market—be it under the public distribution system or the "open" market. This position is clear enough in respect of individual or personal consumption. But it is valid also in respect of social consumption, including education and health services or transport and other facilities. Individuals, groups and classes can and do pre-empt the use of public services in proportion to their income levels, leaving large masses out in the cold.

When investment is made in the public sector and its end-product does not recover the cost of its production, it means, that those who consume it are being subsidised at the cost essentially of those who do not consume it—in the main those who do not have purchasing power to take advantage of even its subsidised sales. A concomitant of this is that there is no generation of surpluses and there is actually erosion of capital accumulated from past investment. This is indeed the heart of the problem of resource stringency which is trotted out as an alibi for the deceleration in the rate of growth of public sector infrastructural facilities as well as production capacities. It may be said with considerable justification in this context that selling of goods and services produced in the public sector—largely critical infrastructural facilities and intermediate goods—at a loss has been really a device for transfer of resources collected by the State from the mass of the people by way of taxation and other ways, including deficit financing, to the private sector and for private gains. The position has by now reached a point in this process where viability of public sector enterprise itself has been grossly undermined and more powerful and enterprising elements in the private sector are beginning to stake claims to a direct hand in the management and even ownership of public sector enterprises, albeit in the name of the supposedly higher efficiency of the private sector.

The pricing should be based on cost-plus principal and subsidy, if any, should be borne by the government and not the enterprise.

Talking about efficiency, however, it is at the same time suggested that the public sector enterprises should continue to sell their products at a loss to the gain of private interests, personal and corporate, because the cost of the much-publicised 'inefficiency' of public sector enterprises should not be passed on to the consumers and should be borne by the public authority and public exchequer. This line of reasoning would appear to be quite appealing on the face of it, if looked at superficially, of course, and may well be justified by the dictum that if private enterprise is run inefficiently and makes losses, it is expected to go bankrupt and fold up. It may be in order to enter a caveat here on this score, however, by pointing out that in our present dispensation even losses of private sector enterprise are taken over by public authority (the takeover of sick mills falls in this category of action on the part of the government) in the name of certain, often very dubious, special purposes.

Basis for Pricing

This is not to say that there is no need to worry about efficiency of public sector enterprise. There is undoubtedly need for improving management of public sector undertakings. But when dealing with the problem of pricing of products of public sector enterprises, there are some overriding considerations to be taken into account. First of all, there is no valid reason why the cost of 'inefficiency' of public sector enterprise should not be borne by the consumers of its services and goods and why should it be passed on to the general public and the public exchequer—this is, largely those who do not partake of the consumption of these services and goods. So long as there is inefficiency and while steps are taken to improve efficiency, the costs of inefficiency too must be recovered from those who take or want to take advantage of its goods and services, be they steel or power or telephones. There is no escape from this position unless, of course, it is suggested that public sector enterprise should cease to be and should be wound up. But this again can be no general or abstract proposition and has to be considered in specific terms. Can it be argued, it must be asked, that public sector enterprise in India in areas and sectors where it operates, can be substituted by private sector with any greater efficiency. Further, can it be argued that private sector in India is at all in a position and has the resources and the ability to take up any of these areas and sectors and deliver the goods on the scale and on the standard required ? Finally, can it be argued that any of these areas and sectors could be ignored in any meaningful design of economic and social development. The answers in all these respects are clearly to be in the negative.

Once the critical role of public sector enterprise is recognised in India's development process, and there is a national consesus on this score, the cost of public sector enterprise and its growth, with all its supposed inefficiency will have to be borne, above all, by those who depend on its supplies of goods and services for satisfaction of their needs and purchase them. It might also be emphasised in this connection that obliging the functional management of any public sector enterprise to sell its goods and services at below their cost of production and to show losses on that account is the surest way of undermining the morale of the work force in the enterprise as well as undermine its efficiency. Any socially meaningful and economically rational pricing policy for public sector enterprise must, therefore, be squarely based on the sale of its goods and services on the cost-plus principal. If at all it is considered necessary to subsidise these sales, this should be done on a highly selective basis in the open and with specific and stated social or economic reasons. Such selective subsidisation should be fully covered by the public exchequer and must not appear as the losses of public sector enterprises. ☐

The Public Sector in Tourism Industry

S. N. Chib*

TOURISM is basically a service industry and as such, historically it was generally left to private enterprise to provide accommodation, transport and other services to visitors. But as tourism became a global phenomenon in the sixties and seventies the governments found it necessary to play a more active role. Thus, over the last 20 years, increasingly so in the seventies, a variety of patterns of the role of the State in the development of tourism have emerged : (i) the developed countries where adequate infrastructure and utilities are generally available and the governments limit their responsibility to mainly promotional and regulatory functions; (ii) the socialist countries where private enterprise is practically non-existent and the state undertakes the development of infrastucture as well as operation of facilities and services ; (iii) the Third World consisting of about 120 countries where the governments assume the responsibility of developing the infrastructure but exercise different options in providing tourist service depending on the level of economic development and the national goals of the country. For instance, in Sri Lanka, the ASEAN, Kenya, Jordan, Egypt, Venzuela, Mexico the governments have generally desisted from operating hotels and road transport services for tourists while in India the public sector entered the field of operation as far back as 1964. There is yet another group of developing countries in the Caribbean which has followed a policy of complete *laissez faire*. Extremely poor in resources many of these small islands generally offer an almost complete tax-free situation and open skies for air services to foreign developers, as distinct from investors. The developers then must build all the infrastructure and utilities besides accommodation and other facilities.

The tourist industry in India had an earlier start, and was relatively more developed than in most of the Asian and Middle East countries by 1964. Why was it then necessary for the public sector to start operating in a service industry ? Partly because of ideological reasons, in pursuance of the concept of a 'socialist pattern of society', but mainly to get over certain administrative constraints that were hindering the growth of tourism. Under the Second Five Year Plan (1956—61), for the first time tourism was given an allocation of Rs. 2 crores and then about Rs. 3.5 crores in the 3rd Plan. Under these plans it was proposed to provide accommodation and other facilities in places with high tourist potential like Khajuraho, Ellora-Ajanta, Konarak, Mandu, Halebid-Belur, Madurai, Bodh Gaya and so on. However, the executing agencies being the CPWD or State PWDs the progress was at a snail's pace. Only about Rs. 1.35 crores was spent in the 2nd Plan period. Similarly under the rules of procedure all the publicity material required for world-wide dissemination had to be produced through the agency of I & B Ministry—Publications Division, Directorate of Audio-Visual Publicity and the Films Division. There were serious delays in production and the quality was not of international standards. Finally, because road transport nad been nationalised private operators were not given permits to run transport services of requisite standard for tourists on popular routes like Delhi-Agra-Jaipur, Aurangabad-Ellora or, for that matter, anywhere.

While the public sector in tourism opens up new areas, redresses regional imbalances and charges low prices, it is found wanting in the quality of services.

There was an apparent need for equipping the Department of Tourism with an autonomous technical and operational arm. Thus the Tourism Review Committee under the chairmanship of Shri L. K. Jha recommended in 1963 that three public sector enterprises be established for the execution and management of tourist bangalows, for the production of tourist publicity material and for the operation of transport services. In 1967 the three enterprises were merged into the present India Tourism Development Corporation (ITDC). A more significant development was to associate the State governments with tourism development. When the first move was made in 1955 by holding a meeting of State Chief Secretaries and asking them to include tourism in their Second Plan, some of them expressed a sense of disbelief. Their reaction was : Tourism—what ? Over the years the States started setting up their own Tourist Departments. They too felt that need for an operational arm for management of facilities on a semi-commercial basis. By now 15 States have established Tourist Development Corporations. One could hazard the opinion that even though almost half the people live below the poverty line, tourism, apart from travel for pilgrimages and business purposes etc., has gradually taken roots in India. Only the process has been reversed. In industrial countries tourism started at grass-root level and the national tourist organisations came into being by a process of integration. In India, as in most developing countries, it percolated to local levels from above.

Poor Service

To evaluate the performance of the public sector in Indian tourism one has first to determine what sort of a yardstick to apply. Should performance be judged mainly on the basis of profitability or should the 'developmental' role of these enterprises, both at the Centre and in the States, be emphasized. All these

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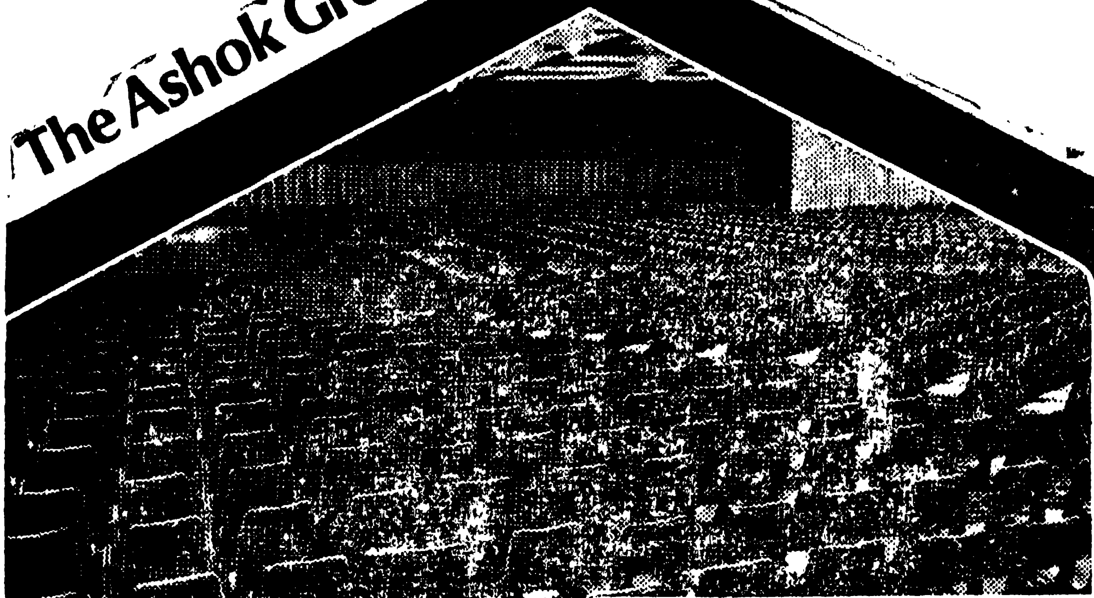
* Former Director General of Tourism and well-known tourism consultant

The Ashok Group



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India Tourism Development Corporation

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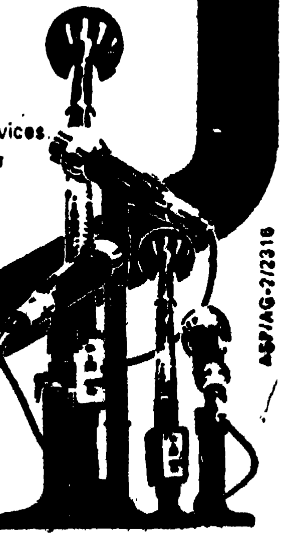

enterprises are called Tourist Development Corporations, but unfortunately the key word 'development' is generally ignored, even by the Estimates Committee and the Committee on Public Undertakings. The Jha Committee defined the role of the public sector as follows : "Our intention clearly is that this Company should be self-supporting but the purpose of setting up such a Government undertaking should also be to blaze the trail, as it were, in ventures which are not immediately remunerative but which are designed to promote tourism. In fact, it should be clearly mentioned in the articles of association of the Company that it should also engage in activities of this kind."

When the first three undertakings were set up the private sector reacted strongly against them. The Minister of Tourism gave assurances in Parliament and at other forums that these undertakings were not intended to compete with the private sector but rather to fill the 'gaps', to develop new areas where private enterprise was not forthcoming, to provide services which were hitherto lacking. To quote the Jha Committee Report again, "on the whole, therefore, while we see no objection in principle to the public sector not only building hotels but also running them, as indeed it is doing in some instances, we feel it would be more advantageous all round for government to give the running and management of the hotel, once it has been built, on a suitable contract to people who are professionally competent in the field. Over and above what the public sector might do there would be clearly need for giving every encouragement to private enterprise."

The public sector enjoys certain advantages. For instance, it is able to secure suitable sites for hotels at concessional prices which are not available to private enterprise or available only at exorbitant costs. The public sector hotels also have the patronage of official guests and entertainment. At the same time it is vulnerable to political pressures with the result that the planning is not always on a selective basis, which is what it should be with limited resources. Investments have been made in certain places which have not much of tourist potential. Nevertheless, the developmental role envisaged by the Jha Committee has been partially fulfilled. Both the ITDC and State tourist development corporations have organised facilities and services in out-of-the-way centres rich in tourist attractions. However, it is rarely that they have handed over the management to 'people who are professionally competent in the field'. Also to disarm criticism for lack of profitability the ITDC have not merely filled the 'gaps' but also taken over or built hotels in large cities. Today in terms of room capacity it is the largest group owing or operating more than 15 per cent of total government approved accommodation in the country. It is continuously expanding both in remote areas as well as in high traffic cities like Delhi, Agra, Jaipur, Varanasi and so on. One could justify this strategy because the profits made in hotels in cities or transport services on popular routes provide a cushion for the losses incurred in low traffic areas.

In a country with a mixed economy such as India the performance of the public sector is inevitably compared with that of the private sector. If the quantum of profitability is not the right yardstick surely, the range and quality of services is. Where the public sector in tourism seems to have failed is in fact the quality of services, at the State level. The three main criteria by which an accommodation unit is usually judged are the comfort that guest rooms offer, the quality and variety of food and the efficiency of services. Barring a couple of States the performance on the basis of above criteria of the State Tourist Development Corporations is sub-standard. The furnishings and furniture are usually of the wrong type with little regard to the size and shape of the room, or the needs of guests, the staff is untrained and there is no accepted drill that the staff should follow to make a room ready for a new guest. Elementary hygienic standards are not observed in kitchens and pantries. Half the gadgets like heaters, air-conditioning units, blowers, plumbing etc., usually don't function. I am speaking from personal experience because during the last five years I have had the opportunity of making a thorough inspection of hotels and tourist bungalows in three States run by State Tourist Development Corporations.

What is called for is a clear and comprehensive national tourism policy.

No doubt the performance of the ITDC, is far superior to that of State units. But even at the risk of being misunderstood I have to say that it is not as good as that of the units of comparable category in the private sector. No doubt the prices charged for the rooms and beverages are lower. But it is not a good enough excuse because what matters to the guest is value for money.

Lack of Professionalism

The public sector in the tourist industry has come to stay, if for no other reason because it can take the beating which the private sector can't afford to. There is no question that it is performing a highly useful function in opening up new areas and thus redressing regional imbalances. What it seems to lack is, professionalism and a proper functional structure. Professionalism requires trained manpower and secondly, experience which comes with continuity. Training is an educational process and is primarily the responsibility of the state. The state has failed to provide it. The four Institutes of Hotel Management, Catering and Nutrition and as many as 15 foodcraft institutions are not providing enough trained manpower required by the hotel and catering industry. Vocational training in tourism to meet the needs of official Tourist Departments and travel agencies is practically non-existent. A recent review by a Swiss expert nominated by the World Tourism Organisation of the training institutions in tourism and hotel management in India showed that they are mostly staffed with teachers who have had no formal training in hotel crafts or tourism themselves. The standard of teaching is rather poor and lacks practical training.

Continuity is lacking because the heads of Departments of Tourism and of Tourist Development Corporations are drawn from administrative services. They serve their terms of a few years and the experience thus gained is lost. The structure is hierarchical and not functional. Another serious defect is that at the

State level, there is considerable ambiguity in the functions between Tourist Departments and the Corporations. Well-defined areas of responsibility have not been fixed. Policy making regulation and monitoring of the travel industry, publicity and promotion, collection of statistics and analysis should be normally the responsibility of the official department, but in a majority of the States the Managing Director of the Tourist Corporation ranks higher in seniority of service than the Director of Tourism. For instance, instead of retail publicity of their own facilities the Corporations have taken over the promotion of the State as a whole.

A UNDP Mission consisting of half-a-dozen foreign experts submitted a Report on the development of tourism in India almost 10 years ago. Referring to the ITDC it recommended that it should, "undertake in future the provisions of amenities and facilities of a developmental or pioneering character which private enterprise is not appropriate or not willing to provide even with the grant of certain incentives by the Government." It went on to say, "In measuring the effectiveness of the operation arm, the yardstick should be the return not in direct profit alone but should include the indirect and wider regional or national benefits." The Committee also observed that the division of responsibility between public and private sectors of tourism appeared to need clarification for the future. However, I doubt if the UNDP Report was even given serious consideration. Similarly, a Report submitted seven years ago by an expert nominated by UNDP, Prof. Robert McIntosh, Dean of the Faculty of Hotel and Tourism, Michigan University, on the setting up of a post-graduate Institute of Tourism and Research has not been implemented. What is called for is a national tourism policy which should place the role and functions of the public sector in a proper perspective and introduce comprehensive training programmes, both at the craft and management levels, in order to improve the quality of services in all segments of the tourist industry. □

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Tourism Corporation

IT is fourteen years since India Tourism Development Corporation (ITDC) came into being. It is backed by the country's largest accommodation chain—the Ashoka Group. Over 3,000 rooms in 21 hotels, 3 forest lodges, 11 travellers lodges and 2 beach resorts extend from Jammu in the north to Kovalam in the south.

Existing properties have been reconditioned and expanded. In New Delhi alone the Akbar has 153 more guest rooms while the Ashok has an additional 104 rooms. A conference hall is being added to Lodhi. The travellers lodge at Bhuvaneswar has been converted into a 3-star 38 roomed hotel. To the Jaipur Ashok 44 rooms have been added. Khajuraho Ashok and Varanasi Ashok have both been centrally airconditioned. Work is on for the addition of rooms at the Hassan Ashok, the Varanasi Ashok and the Airport Ashok in Calcutta. The travellers lodge at Madurai is being converted into a hotel and will have 43 rooms and the Laxmi Vilas Palace, Udaipur, has 18 guest rooms added to its existing 34. The Lalitha Mahal Palace Hotel in Mysore now has a new wing with 32 rooms and 2 suites.

Bedroom, Kovalam Beach Resort Trivandrum

In Delhi, the new hotel Kanishka is nearing completion with 320 rooms. And for the budget tourists the Ashoka Yatri Niwas will soon be opening its doors. In time for the Asiad games in 1982 the ITDC plans to build two more five-star hotels in New Delhi.

With a fleet of 44 deluxe coaches, nine mini coaches, 150 luxury cars (20 of which are Mercedes Benz) and 55 cars of Indian make, the transport units of the Corporation are located in 17 centres through the length and breadth of the country. The fleet is being augmented wth more coaches, especially in yet unexploited eastern India. The ITDC organises package tours around various parts of the country.

Akbar Hotel New Delhi

Convention and conference facilities to match international standards are offered at any of the Ashok Group hotels. The Ashok in New Delhi has been equated with the best convention facilities available in Asia. It can accommodate as many as 2500 people at a time, and offers secretarial services and simultaneous translation facilities, among others.

In each of its hotels, ITDC presents a wide range of India. Added to them are five duty-free shops at the International airports of Bombay, Calcutta, Delhi, Madras and Tiruchirapalli. The ITDC also arranges cultural shows for the tourists.

Two hotel projects in Iraq (Mosul and Dokan), are to be built by the ITDC as consultants. A joint venture with Lotus Hotel Limited in Limassol, Cyprus is ITDC's third overseas hotel project, which will also cover management.

Lalitha Mahal Palace Hotel, Mysore

Air India

THE Tatas were the pioneers in starting scheduled air service in India in 1932 under the name 'Tata Airlines'. It was converted into a public company called 'Air India' in 1946 and its services were expanded.

Towards the end of 1947 an agreement was reached with the Government of India for the formation of Air-India International Limited to operate international services. The Government took 49 per cent of the capital participation.

By 1952, the condition of all airlines in India had deteriorated to such an extent that the Government of India decided upon complete nationalisation, and the Air Corporations Act was passed in March 1953. The Act set out to create two Corporations, one to take over domestic operations and the other international operations. Accordingly Air-India was merged with six other domestic airlines to form the Indian Airlines Corporation, and Air-India International Limited was taken over by Air-India International Corporation. (The word 'International' was later dropped).

The scale of operations and the route system of the Corporation have expanded continuously since 1953, when it took over the predecessor company's Bombay-London and Bombay-Nairobi services. To these the Corporation added services to Singapore in July 1954, to Hong Kong in August 1954, to Tokyo in May 1955, to Sydney in October 1956, to Moscow in August 1958, to New York in May 1960, to Kuwait in October 1960, to Mauritius in August 1967, to Baghdad in April 1976, to Accra in December 1976, to Jeddah on April 13, 1977 and to Trivandrum on January 31, 1978.

From a total of four stations served in June 1948, Air-India now serves 43 online and 109 offline sales offices all over the world. From a fleet of just three Constellations, Air-India has now grown to have a fleet of nine Boeing 707s — four Rolls Royce Conway powered 707-437s three Pratt & Whitney JT3D powered 707-337Bs and two P&W JT3D powered 707-337Cs — and ten Boeing 747-237 Bs.

Starting with just one weekly service to London in June 1948, Air-India now operates extensive scheduled passenger and cargo services from Bombay and four other Indian cities — Calcutta, Delhi, Madras and Trivandrum ; to Africa (Addis Ababa, Nairobi, Accra Lagos, Seychelles, Mauritius, Dar-es-Salaam and Lusaka) ; to U.S.A. (New York) ; to Europe (London, Paris, Amsterdam, Frankfurt, Geneva, Rome, Zurich, Brussels, and Moscow) ; to West Asia (Doha, Abu Dhabi, Dhahran, Dubai, Bahrain, Kuwait, Aden, Muscat, Tehran, Baghdad, Jeddah, Ras al Khayma) and East Asia (Dacca, Bangkok, Hong Kong, Tokyo, Osaka, Kuala Lumpur, Singapore, Perth, Sydney and Melbourne).

An Air Hostess welcoming passengers on board the Boeing 747.

Finance

Since nationalisation, Air-India has reinvested Rs. 22.47 crore from its own internal resources to finance its growth and built up assets worth Rs. 277.88 crore. As against this, Government investment in Air-India amounts to Rs. 71.82 crore. This capital is divided into 50 per cent loan capital and 50 per cent equity capital.

In 1978-79, Air-India carried a total of 1,125,908 revenue passengers, 7.9 per cent more than last year. Operating revenue for the year was 348.67 crore, 14.1 per cent higher than the previous year. The capacity offered was 1,269.697 million ATKm, 8.9 per cent greater than the previous year,. whilst the capacity utilised rose by 8.0 per cent to 788.776 million RTKm.

For Air-India, 1978-79 was another remarkable year. For the fourth year in succession, Air-India made a record profit of Rs. 34.09 crore, far exceeding the three previous records of Rs. 28.45 crore in 1977-78, Rs. 17.59 crore in 1976-77 and Rs. 6.35 crore in 1975-76.

As far as cargo is concerned, Air-India carried 42,299 tonnes of cargo in 1978-79 and earned Rs. 63.32 crore, or 13.4 per cent higher revenue from it as compared with last year. Air-India's share of cargo traffic during the year was 42.5 per cent of cargo exported and 80 per cent of cargo imported into India.

A major milestone in Air India's cargo operations was the inauguration of its first ever weekly all-cargo service from Bombay to New York via Europe on September 7, 1979. Air-India has two stretched DC-8-63F freighters on wetlease ; one from the U.S. carrier, Seaboard World Airlines, and the second from Cargolux, a European Carrier.

Air-India is entirely self-sufficient in engineering, operational and training facilities, which compare with the best in the world. Modern computer technology is being increasingly adopted in Air-India.

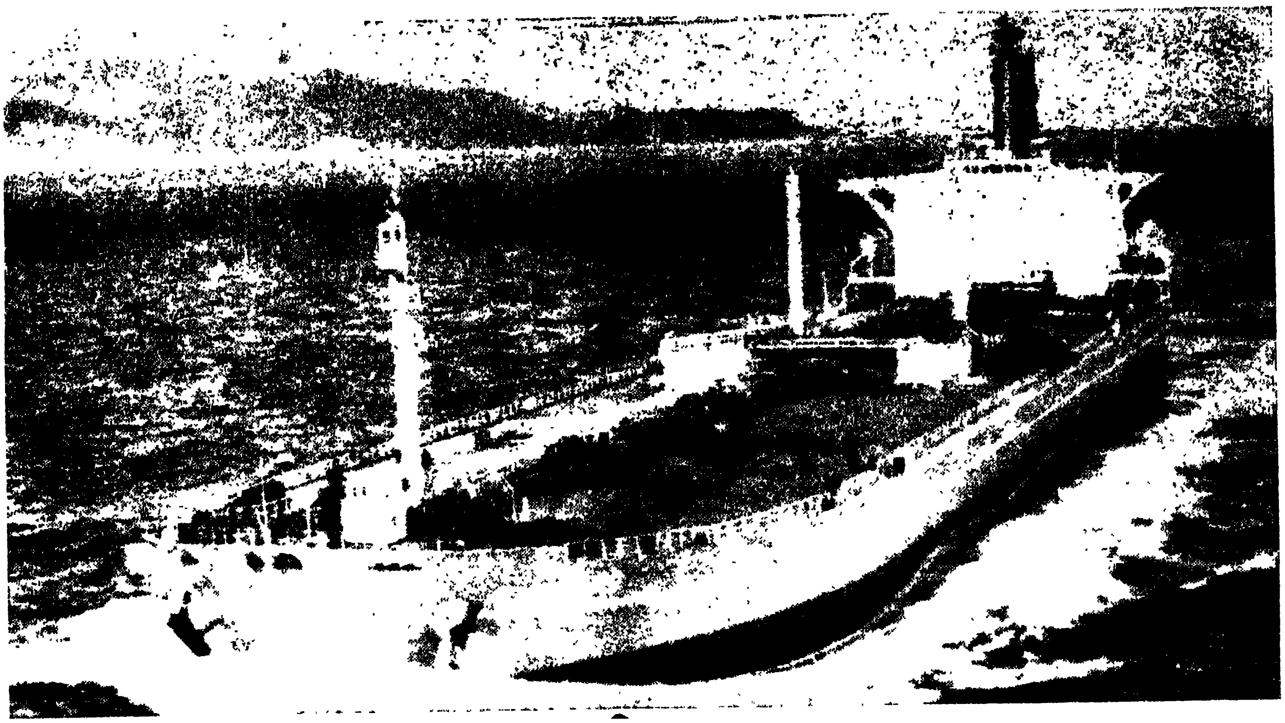
Air-India is playing a significant role in promoting tourism to India. The results of 'Operation Europe', 'Operation UK' and 'Operation USA' entrusted to Air-India by the Government of India have proved a marked success. Since April 1977, this scheme has been extended to cover Australia and West and East Asia. A number of special promotional areas between India and other countries have been introduced by Air-India which have generated large increase in tourist traffic.

The 300-room Centaur Hotel at Bombay Airport is the first hotel built by the Hotel Corporation of India Ltd., a wholly-owned subsidiary of Air-India. The hotel built at a cost of nearly Rs. 7 crore, has all the amenities of a 5-star hotel.

The HCI proposes to construct a second 5-star hotel at Juhu Beach. Air-India is also planning to build a 275-room hotel in Srinagar. The HCI also runs two Beach Resorts, one in Lakshadweep Islands and the other in Andamans, the latter in collaboration with the Travel Corporation of India.

With the approval of the Government of India, Air-India set up on September 9, 1971, a wholy-owned subsidiary company called "Air-India Charters Limited". This company was formed to get back most of the ethnic traffic which was taken away by non-scheduled operators and by other airlines which consistently rebated fares on Air-India's routes. □

In 1978-79, *Air India carried a total of* 1.125,908 *revenue passengers. It has a fleet of nine Boeing* 707*s and ten Boeing* 747—237 *Bs.*



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Round-up

Shipping Corporation of India

THE Government set up the Shipping Corporation of India (SCI) in 1961 by merging then existing two Shipping Companies in the public sector. At the time of its inception its fleet comprised of 19 vessels aggregating 0.26 million DWT. at present, the Corporation owns 146 ships aggregating about 5 million DWT. This growth, by any standards, makes the SCI as one of the fastest growing shipping companies in the world. A significant factor in the SCI's growth has been the changing nature of its business operation. Starting as a liner company, the Corporation has, over the years acquired bulk carriers and tankers in large numbers and at present over 78 per cent of the tonnage owned comprises of these type of ships. During the SCI's existence of 18 years, it could achieve the following objectives:

(i) The company's tonnage increased from 1.92 lakhs DWT as on 2nd October, 1961 to 48.80 lakhs DWT today.

(ii) SCI's share in Indian tonnage went up from 8 per cent to over 51 per cent.

(iii) The SCI had a consistent record of profit upto 1976-77 which aggregated to Rs. 111.66 crores.

(iv) During the last three years of unprecedented slump in the world shipping market, though the SCI suffered a loss of Rs. 53.60 crores, it generated a cash profit of Rs. 76.85 crores.

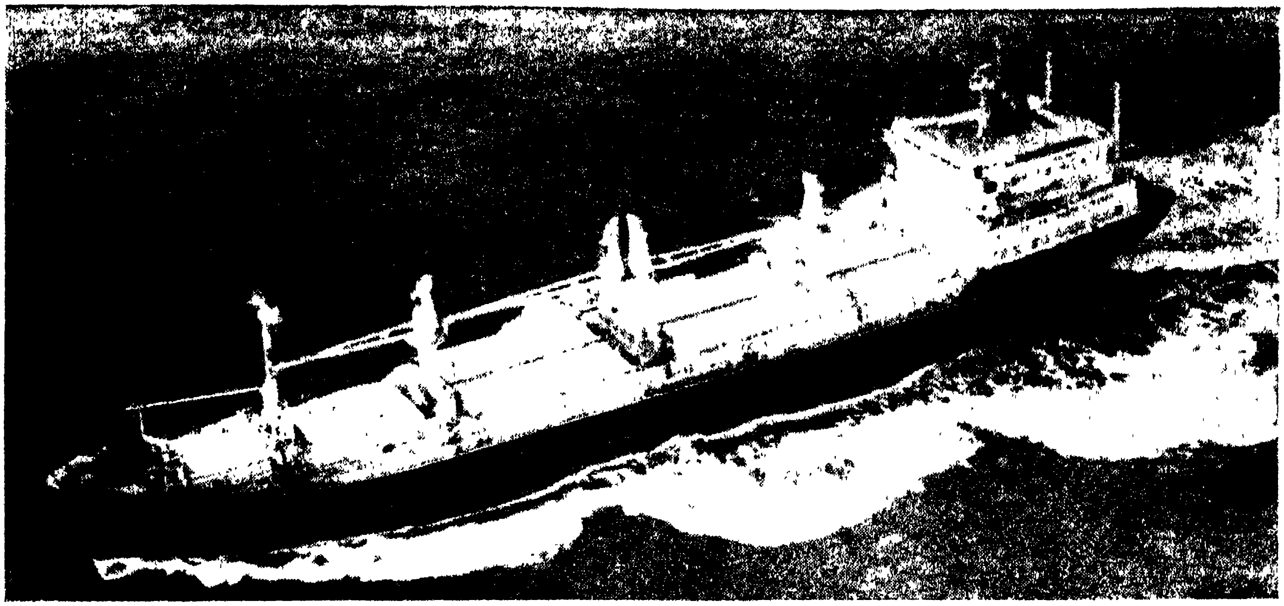
(v) Out of the investment of Rs. 1097 crores on fleet, the contribution made by the SCI from its own resources amounted to Rs. 365 crores.

(vi) The contribution of the SCI towards balance of payment position amounted to Rs. 1080 crores by way of foreign exchange earned/saved.

(vii) The SCI contributed to the national exchequer, by absorbing losses to the extent of Rs. 17 crores for operating services to Andaman and Lakshadweep islands.

(viii) Till early seventies almost all crude imported into the country was carried in foreign flag vessels but in a short span of a few years, this position underwent a change. By 1978, almost all imported crude is carried in vessels flying the Indian flag most of them being SCI vessels. The country's 50 per cent import of products is on the SCI ships. Similarly the SCI has been able to obtain some share in the carriage of iron ore exported from India.

In addition to the above, the SCI has been operating several promotional services to assist our exports and have undertaken a programme of containerisation to



Vishva Parijat SCI's modern multi-purpose container oriented cargo vessel of 16,169 DWT.

meet the requirements of trade, particularly with the industrialised countries. From April, 1979 onwards till date the SCI acquired 11 container-oriented vessels, whose number in the company's fleet today stands at 27 with a capacity of carrying 8641 TEUs containers. With another four container vessels due to be delivered during the remaining months of the current year the container capability of the company will be 10449 TEUs. The SCI has developed expertise in shipping both in respect of ship and shore personnel whose competence is highly valued in the shipping world and greatly respected in the various forums of the United Nations.

The SCI's fleet today consists of 146 vessels of 48.80 lakhs DWT involving an investment of Rs. 990 crores. In addition another 13 vessels of 3.08 lakhs DWT of the aggregate value of Rs. 143 crores are on order. The Corporation has plans for further strengthening and consolidating its shipping services and for this purpose it has proposed to acquire 47 vessels involving a sizeable investment of about 800 crores during the Sixth Plan.

It is hoped that during the current financial year it would be possible to provide a container-oriented link for carrying Indian exports to West African ports, Carribean and Latin American countries. ☐

Inland Water Transport Corporation

CENTRAL Inland Water Transport Corporation Ltd. was incorporated as a Government Company under the Ministry of Shipping and Transport in February, 1967. The Corporation operates cargo services on the following routes :

(i) Calcutta-Gauhati-Calcutta, (ii) Calcutta-Karimganj-Calcutta, (iii) Calcutta-Bangladesh-Calcutta, (iv) Calcutta-Haldia-Calcutta, (v) Calcutta-Farakka-Calcutta.

The Corporation plays a vital role in easing the transport bottleneck of the North-Eastern states. In furtherance of this role, plans have been made to introduce rail-cum-river-cum-road services from Calcutta to the important trading centres of the N.E. States. An experimental service to Agartala has already been introduced successfully.

In addition to the river services, the Corporation has a well equipped dockyard, popularly known as "Rajabagan Dockyard". The yard in engaged for the maintenance and repairs of Company's own fleet and docking and also for the construction of new vessels upto 3,000 DWT. Its machines and foundry shops cater for building sophisticated equipment for Blast Furnaces of various steel plants. The dockyard also manufactures light house lantern casings, equipment for navigational aids and electric light buoys for different ports and harbour installations.

The company also have a fully equipped deep Sea Ship Repair manned by experts for undertaking all kinds of repairs to sea-going vessels, including dry-docking and afloat repairs of hull and machinery.

CIWTC has a small ship repair unit in Port Blair where running repairs are carried out to vessels of the ocean lines calling there.

The Corporation also undertakes several allied activities which go with water transport such as dredging, ferry services, etc.

Besides the above, the Corporation has an automobile workshop in New Alipur where bodies for buses|trucks| vans are built.

The Corporation has been running at continuous losses since its inception and its accumulated losses stands at Rs. 4322.35 lakhs as on 31-3-1980. In order to put the Company on a sound footing, the Union Cabinet has approved CIWTC's Rs. 34.20 crore investment proposals for the sixth Plan.

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Nehru and the Public Sector

Dr. S. Chakravarty*

IN Jawaharlal Nehru's intellectual make-up, two things stand out very prominently, a profound sense of history and a deep commitment to a scientific secular outlook. His interest in planning was, therefore, not merely technocratic although he was aware that technocrats had an important role in carrying out a process of socio-economic transformation through planning. For him planning basically implied the extension of the domain of rationality from the individual to the area of social decision making. It has been argued by some historians that capitalism is the first socio-economic formation which is based on the principle of rationality But this concept of rationality was limited, to a large extent, to a concept of instrumental rationality, or to put it more simply, to the problem of minimizing means required to achieve a pre-specified end. In practice, it means the principle of maximizing money profits, which, in certain specific social and historical situations, may also be socially the right thing to do, even judged by the criterion of "social good", but adhering to the same principle may give rise to gross social injustice as well as to an inefficient allocation of resources in situations which are very often likely to prevail in a backward developing economy. In such situations, substantively rational action requires that we go beyond the limits of the principle of 'letting things alone' and try to channelize the motive force which shapes societies

Nehru saw planning as a powerful motive force which could liberate the latent energies of vast masses of people and deploy them productively in bringing about which he called a 'socialist pattern of life'. What did he mean by such an expression ? As he himself stated in introducing the Second Five Year Plan in the Lok Sabha, on May 23, 1956, "We mean (by the above expression) a society in which there is equality of opportunity and the possibility of everyone to lead a good life." He further added, "Obviously, this cannot be attained unless we produce the wherewithal to have the standards that a good life implies. We have, therefore, to lay great stress on equality, on the removal of disparities, and it has to be remembered always that socialism is not the spreading of poverty. The essential thing is that there must be wealth and production".

These sentences state, what I consider to be the essential premises on which Nehru's approach to planning rested. In more modern language, they contain what may be called the commonsense underlying the concept of 'redistributive growth', an idea which was sought to be concretized in framing the draft of the Fifth Five Year Plan. Nehru rejected basically two simple sequential approaches to planning. The first one says, "let us have growth first and then, we shall have time to take care of problems relating to distribution", while the second one says, "let us begin with distributive justice and we should be content with whatever growth rate comes out as a consequence". It should be noted that we should not equate these sequences with the capitalist and the socialist solutions, as in popular minds they often tend to be. For it is not at all clear that in a semi-feudal economy which has had a long colonial past, any form of capitalism is growth maximizing. Similarly, when we are dealing with a poor economy subject to population pressure, a simple minded distributive policy, even if it were to be practicable, will necessarily imply a quality life which can hardly lead to the full deveopment of human potentiality.

Due to the Public Sector, India has acquired the skill and competence which very few developing countries have. In addition import dependence in critical sectors has greatly diminished.

In working out the strategy of redistributive growth, Nehru attached a great deal of importance to the problems of capital accumulation. As he saw it, India had to invest vast amounts of resources in building up a large network of infrastructure such as energy and transport initiate a break from almost complete dependence on a few agricultural commodities for exports, bring large areas of land under assured irrigation and, above all, equip its growing population with required skills and aptitude. He saw these investments as essential to break the 'vicious circle of poverty', even though he knew that this required placing some burdens and responsiblities on the present generation of India, especially amongst the more affluent ones. He approached the question of the public sector in this context as a possible instrument in rendering the transition more acceptable to large sections of our society.

Why Public Sector ?

Let us first consider what were the alternatives with which he was faced. India had inherited from its British rulers a certain legacy of underdevelopment with some characteristic features. There was virtually stagnation of agriculture which had extended over nearly half a century, a shrinking export market in relative terms,

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Professor, Delhi School of Economics and Former Member of Planning Commission. This address was delivered as 'Nehru Memorial Lecture' organised by the Standing Conference of Public Enterprises at New Delhi on Nov 15, 1980.

an economy with very little consumption of modern forms of energy, and an infrastructure largely oriented to export activities. Undoubtedly, there was an Indian entrepreneurial class, largely with a trading background which had made some dents in sector of modern industry, largely textiles.

To place the entire burden of development on this class could not have conceivably meant a rapidly growing economy, let alone an economy which would have inbuilt features of an equitable social order. It is, of course, quite possible that some growth would have been possible if one could assume that there would be a massive inflow of foreign resources, capital, skill and technology all included, but quite apart from the goals of the national movement, it is extremely doubtful whether India was strategically or otherwise so situated which would have allowed such a solution to be worked out, not to mention the income distributional considerations.

My argument would seem to suggest that the approach adopted by Nehru could be justified on purely pragmatic considerations alone. I have no doubt that pragmatic considerations played a very important role. But there were more things involved than mere pragmatism. There was a whole theory of transition to a more humane social order which was behind the choice that Nehru made. To get some indication of the way Nehru saw the issues involved, I cannot do better than to quote once again from a speech which Nehru made at the annual meeting of the FICCI on March 5, 1955 : "Capitalism, socialism, Marxism, all these are children of the Industrial Revolution. We are on the eve of at least something as great as the Industrial Revolution, perhaps something bigger. It is affecting every thing—production, distribution, thinking and everything else. In this context, why was this decision for a Socialist Pattern of Society taken ? It was taken to give an indication of the objective and the approach. We have to fit India into the nuclear age and do it quickly".

Here, again we get a clear indication that for Nehru, the process of transition included not merely accumulation of physical assets which, no doubt, was extremely important but also building up of technological capabilities of the highest order. Furthermore, it is made abundantly clear that for Nehru none of the conventional modes of thinking as well as existing patterns of social organization were adequate to deal with the technological opportunities which were opening up. He, therefore, wanted the strategy of transition to be worked out in the context of changed times.

India's Second Five Year Plan was formulated precisely to take care of some major aspects of the transitional requirements. Simultaneous acceptance of emphasis on socalled heavy industry strategy along with emphasis on village and cottage industries, was given an analytical coherence by the late Professor Mahalanobis. But the basic idea was to make adequate preparations for changing the entire productive base of society while buying time by allowing for labour intensive activities to develop in certain sectors of the economy. In addition, Nehru and Mahalanobis both made it clear that agricultural development was to be brought about through small peasant proprietors whose deficiencies were to be remedied through a gradual adoption of cooperative methods of management. Nehru did not clearly envisage the growth of large scale mechanized farming based on wage labour-capital relationship. In implementing the heavy industry strategy, Nehru assigned a great deal of importance to the public sector. He himself gave several reasons which can be stated as follows : *First,* those industries were marked by long gestation periods, heavy capital investment and a high level of technology. Private sector in India was by and large not in a position to invest in these sectors, because their internal resources were small, Indian capital market much too small and imperfect. Furthermore, these required a very skilled labour force which could not be recruited from the rest of the economy without substantial investment in skill formation. In the nature of the case, the state was in a much better position to deal with these problems because it could afford to take a long view and not be guided by the criterion of (exclusive) private profitability. *Second,* many of these industries were marked by a high level of indivisibility and the Indian market could sustain at best a few large units at reasonable levels of efficiency. Hence, monopoly gains could be very large and this could adversely affect the distribution of incomes. *Thirdly,* given the inter-industrial flow of outputs, these industries could be described as 'key industries', where command by the state run on democratic lines could ensure higher levels of public accountability and correspondingly dangers of discriminating treatment with regard to the rest of the economy could be minimized.

The scarce commodities and services of the Public Sector are often sold below their cost price, resulting in losses to it and a flourishing black market.

As I see it, Nehru's ideas at this stage were more heavily influenced by considerations of 'physical planning' as distinguished from financial planning. He was very much concerned that India should minimize its dependence on imported materials of a critical nature as well as speed up the process of indigenization of technology. Examples where vulnerability could be large were indicated when he talked about domestic production of mineral oils, machine-building, atomic energy, etc. Plan priorities also reflected this aspect of his thinking. Within the broad framework laid down by the Plan, Nehru was very categorical that private sector had a very major role to play. One can refer to his numerous speeches where he put the record straight by inviting private sector to do the best that it could by way of contribution to national wealth.

Achievements

Succeeding Five Year Plans have followed the example set by the Second Five Year Plan in as much as they devoted large sums of money to building up capacities in the public sector. However, have they succeeded in achieving the objectives which Nehru had in mind ?

Let us look at the industrial picture that India presents in 1980 and compare it with what it was when planning began. But a few highlights can be cited where India has acquired the skill and competence which very few developing countries have. In addition, import dependence in critical sectors has greatly diminished.

Consider sectors such as heavy electrical equipment, oil refining, production and exploration; heavy chemicals, ferrous metallurgy, transport equipment. These are all sectors where Indian industry has come of age. I am leaving out sectors such as atomic energy where full impact is yet to be felt or computers which have to go a long way even though a good start has already been made.

What has been the contribution of the public sector in all these areas? Answer is that in each case its impact has been overwhelming. It may be said, however, that such an answer does not mean anything by itself in as much as their growth is due to government's policy decision to direct investible resources into public enterprises which were specifically set up in each sector. This is, of course, true but the facts remain that in many of these sectors Indian industry is very highly competitive. Furthermore, they demand a very high level of skill and managerial talent. Without labour and management inputs of a high order, mere investment of financial resources would not have yielded the results in terms of steadily growing production levels. I think that clearly there can not be any two opinions that without the mediation of the public sector, these sectors could not have developed at all or at least would have developed as completely dependent entities as the experience of many countries shows.

Shortfalls

There is, however, considerable criticism of the public sector in certain sections of the press and also in several elite circles. We should devote some time to these criticisms, not merely because in any democratic polity, responsiveness to criticism is necessary for survival, but also because further growth of the public sector as well as their ability to fulfil the objectives that Nehru and Indian planners had set before themselves may depend crucially on the adoption of certain crucial remedial measures.

I believe that misgivings about the functioning of the public sector stem in popular mind from two sources, one physical and the other financial. The physical performance of the public sector has been regarded as below the mark by many observers. I think, that a global approach in this context hides more than it reveals. Going by disaggregated statistics, the sectors whose performance causes considerable concern are power, railways, coal, transport equipment, heavy engineering, certain fertilizer units and, of late, steel. These are obviously sectors where shortfalls create very considerable problems for the rest of the economy.

What are the reasons for these shortfalls? As far as I can understand it, these reasons are threefold. There is, of course, the quality of management, a point which is very often given the pride of place. This factor is much too important to be ignored and I shall come back to it at a later stage of the argument. But I believe that there are two other important reasons which are often overlooked. One of them relates to the role exercised by inter-industry linkages. Capacity utilization in several very important industries is an interdependent process. Coal, steel, power and transport constitute a complex, sometimes labelled as the 'fuel-metals' complex which cannot be run efficiently unless their planning and current operations are properly coordinated in time and space. This requires obviously monitoring and adoption of remedial action, if necessary at levels higher than the units themselves, some times cutting across industries. I believe that we have so far failed in evolving a viable organisational structure for this purpose. We generally oscillate in this respect between rather passive unitwise management and very high level intervention, none of which is adequate to deal with this job.

Public enterprises suffer from excessive centralisation, inadequate delegation of responsibilities, absence of adequate result-oriented management cadre.

The other factor that I have in mind is that of demand. It is generally well known that for heavy machinery production to remain at a high level, the overall level of investment must be growing at a sufficiently rapid rate. Any slackening in the rate of growth of investment, not to speak of absolute decline, is apt to create excess capacity in the higher order capital goods sectors. Economists have been long familiar with this phenomenon in their study of business circles. Answer to demand problem would lie partly in stepping up levels of public investment, partly in product diversification and partly in looking for possible ways of reorienting production for export purposes. It would also follow, *pro tanto*, that any significant liberalisation of imports in these areas can aggravate the demand problem very considerably.

I now turn to the discussion of the financial aspects of the problem, in so far as they are not a direct result of under-capacity utilization. I am assuming, at this stage, that physical and financial management can be treated independently of each other, which is not always true.

The main issue in this context is one of price fixation by the public sector. There was at one stage the idea that public sector should neither make profits nor losses. This was based on certain misconceptions regarding the role of the price system in the context of an expanding economy. Fortunately, these misconceptions are no longer prevalent among the professional economists. In practice, however, we have gone one step better. We are selling highly scarce commodities and services quite often below their costs of production. The result is accumulated losses by the public sector, a flourishing black market and a very negative image for the public sector.

The present practice is often supported by the argument that this way we help restrain the increase in prices. This, I believe, is a gross misconception. It is, of course, true that given the nature of the products produced by most public sector enterprises, a rise in price in any major industry has a cascading effect. But if costs are inflexible, then the alternative is some form of subsidization by the government, which, in the context of today, results in a larger volume of deficit financing. I would maintain that for most practically relevant situations, the latter is the more dangerous course from the point of view of permitting an inflationary rise in prices.

There is also a somewhat deeper problem involved in terms of corporate management. A concern which is obliged to sell its product at a price which gives rise to losses is, in many cases, apt to lose its initiative, particularly when it knows that its prime costs are not going to be covered in any case. Economies which are to be obtained by distributing overheads over a larger volume of output do not appear attractive when prices are kept at artificially low levels. This means, in effect, an additional cause for deficient capacity utilization. It is also interesting to note that in sectors such as coal, losses have mounted over the years partly for reasons indicated here.

These arguments constitute, in my opinion, a logically compelling case for greater price responsiveness on the part of the public sector. Considering the fact that public investment in crucial areas is a 'must' for this economy and also the fact that the usual avenues for mobilizing resources through taxation are getting progressively blocked, for reasons which are partly economic, partly administrative and partly political, there would appear to be no way out to treating the public sector as an *engine of accumulation* in the years to come. This is a dimension of public sector's functioning which was insufficiently stressed in the earlier years of Indian planning.

I now turn to the first reason, the question of managerial inefficiency. This is no doubt a factor of considerable importance. But I believe that it is not enough to point out its existence. It is also necessary to produce a proper analysis of the phenomenon. I am not an expert on the problem of organisation behaviour. But from my limited experience and study of the problem, I would be inclined to think that our public enterprises suffer from excessive centralization of top appointment decisions, an inadequate structure for delegating responsibilities within the organization, absence of an adequate managerial cadre oriented towards achieving goals which are supposed to correspond to the basic objectives of public enterprises. Above all, there is the greatest need to recognize that the job of public sector managers is entirely professional in nature, which in today's context also involves a high degree of exposure to relevant technical processes.

Wrong Remedies

While I believe that urgent action is called for in these respects without losing undue time, I hesitate to put forward 'snap' solutions. They are best left to be worked out by a group of specialists. Meanwhile, I can only comment on two solutions which have been suggested in certain quarters in fairly recent times. One relates to the question of private management with public ownership. The implicit idea here is that private management is necessarily more efficient. There is no clear test of the proposition which has been proposed by anybody. There are certainly some very well-run private units in the corporate sector. They deserve due recognition on their own merits, but then equally clearly there have been several cases of very well-run public enterprises. Such a comparison, therefore, does not, in my opinion, clinch the issue. In order to bring about strategic reorientation, one must have sufficient evidence that there is a very large reserve of professional talent available in the private sector, which can be tapped in large measure by the public sector for the types the product it produces. Such evidence at the moment is not available to the best of my knowledge.

A second suggestion is import liberalization in regard to capital goods industries. Here, I submit that compatibility with country's basic objective of self-reliance requires that we import suitable designs, if and when necessary, rather than products. Furthermore, even here, as Japan's technological policy shows, what is essential is adaptation and evolution of designs rather than mere imitation. In fact, one of the points that I shall strongly urge is that public sector should devote sufficient effort to building up significant design capabilities in the major sectors of industry. In this respect, one hears disquieting reports, which, if true, do not augur well for the future of the country.

Returning to Nehru's ideas on the role of the public sector with which I began, there are two major developments which make his arguments for the public sector even more compelling today than it would otherwise be. One relates to the world-wide turmoil on the energy front. Here, I believe that India has to mount very major efforts in regard to exploration, development, research and utilization of different forms of energy resources. Our economic survival as a growing self-reliant nation significantly depends on our success in this area. The other point is the paramount need of accumulation to which I have already made reference. In order to prevent disparities getting wider amongst classes and regions, public sector will have to be run very efficiently as well as profitably. All our policies will have to be reoriented bearing these two requirements in mind.

Nehru himself was well aware of what this implies. He said, "when one deals with a plant and enterprise where quick decisions are necessary, which may make a difference between success and failure, the way a government functions is not sometimes suitable. I have no doubt that the normal governmental procedure applied to a public enterprise of this kind will lead to the failure of that public enterprise. Therefore, we have to evolve a system for working public enterprises where, on the one hand, there are adequate checks and protection, and, on the other, enough freedom for that enterprise to work quickly and without delay."

I believe that these words possess the same amount of relevance today as they had when they were spoken. Instead of wasting much time and energy on relatively sterile debates, it is towards evolving such a viable framework that all our efforts should be devoted. For as Nehru added, we shall all be ultimately judged by the final results. □

Steel in the Public Sector

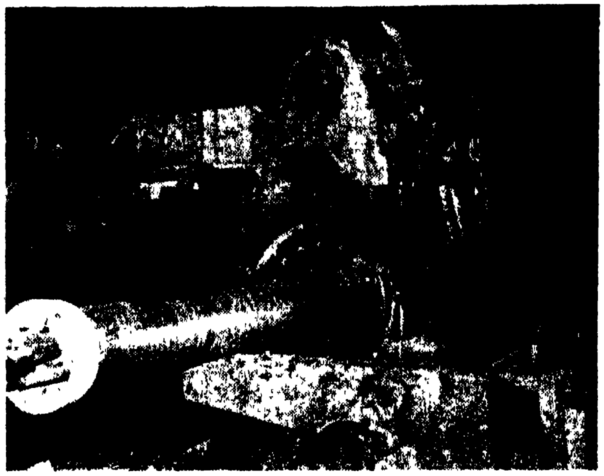
S. S. KHERA*

"WHAT will you do with all the steel you want to make, eat it ?" Thus, an emissary of a friendly western government, red-faced in his anger when he came to see me in my office in the Ministry, immediately after we had successfully negotiated and concluded the Bhilai Steel Agreement with the U.S.S.R. on Republic Day of 1955. I had sat with my Soviet counterpart in the negotiation for most of the previous night hammering out the final terms and conditions. (It would be a piece of false modesty not to say that this first major agreement relating to our industrial effort has proved to be about the best that we have been able to do in the past, and at a time when we were desperately ignorant, inexperienced, and saddled with doubters in and out of government). I asked in return of the western representative, as to what we would do in the nature, when we needed more steel, which is of basic importance in any industrial and economic progress for a nation of this size. His answer was that we would be wiser to leave these things to our friends in the west, who would always be willing to supply the steel and indeed all else like fertilizers, and the rest: of course at a price. Fortunately for this new nation, still amongst those at the bottom of the international economic pecking order, we had a Prime Minister who had been in the forefront of the independence struggle, knew the west intimately, for he had lived and been educated in one of their premier public schools, Harrow, no less, and he had the rare gift of vision into the future; and determination in setting this country on its way towards self-reliance, after centuries of foreign rule and foreign dependence.

The story of the steel industry in India since Independence is in many ways the story of the public sector as a whole. It illustrates the twists and turns, the shifts in governmental policy during the three decades and more since the first essay in a declaration of the nation's economic and industrial policy

We do not dwell here upon the Directive Principles of State Policy which the Constitution prescribes, or the constitutional prescription towards an egalitarian, secular society, or the Constitution's directive against the concentration of economic power in a comparative few private hands; nor upon the Parliamentary declarations over the years setting out the national goal of a socialist state.

The extremely mixed composition of the population, the sheer size and complexity of the social and economic fabric of the nation, the inner conflicts of bias, of interest, of pressures, of ideology within the government that have ruled the country since 1947, have been continuing causes towards the defeat and the deflection of those directives and prescriptions, set at nought the very Parliamentary declarations.



A Spun Pipe being extracted at the Ujjain Plant (Courtesy HSCO)

And amongst the governmental official echelons, in the field and in particular in the corridors of secretariat policy formulation and of power in the Central Government, socialism was a dirty word during the early years of the public sector; it was a dirty word too in the eyes of many of the powerful ministers in successive governments. Socialism still remains, in 1981, a word to be used with caution, with a measure of diffidence, defensively, when trying to make any progress towards the declared national objectives.

Thus, in this brief account of the steel industry in the public sector, any account relating to the policy, the planning, the setting up and running of the steelworks must be seen against the background and the total conjuncture within which the public sector steel industry had its birth, how it has been reared to its present maturity, and perhaps what the future might spell.

Policy

The first definitive resolution of industrial policy by the Government of India was made in April 1948. That was less than a year after Independence. The new government, despite the fact that it had the services of the greatest national leaders, who had fought and won the struggle for independence, were inexperienced in the art and the procedures of positive government and administration. Yet they were caught up in a major military conflict with the newly created Pakistan, and with the dreadful shambles of communal trouble, with vast movements of population both ways across the new political borders, and the sheer administrative load of receiving and settling the millions of refugees escaping into India from the savage butchery that was their fate in their homes across the boundary. As if that were not enough, the outgoing British government had added to the national confusion by simply declaring that the many hundreds of the so-called "Native States" were independent entities

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*Cabinet Secretary (Retd), Govt of India

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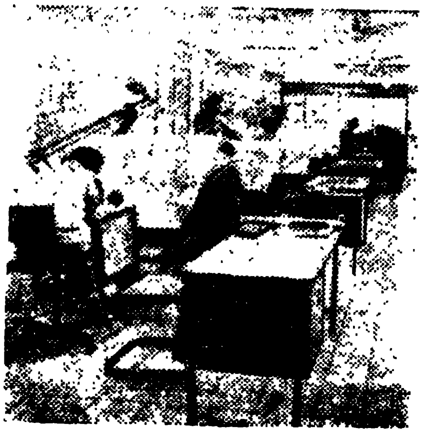

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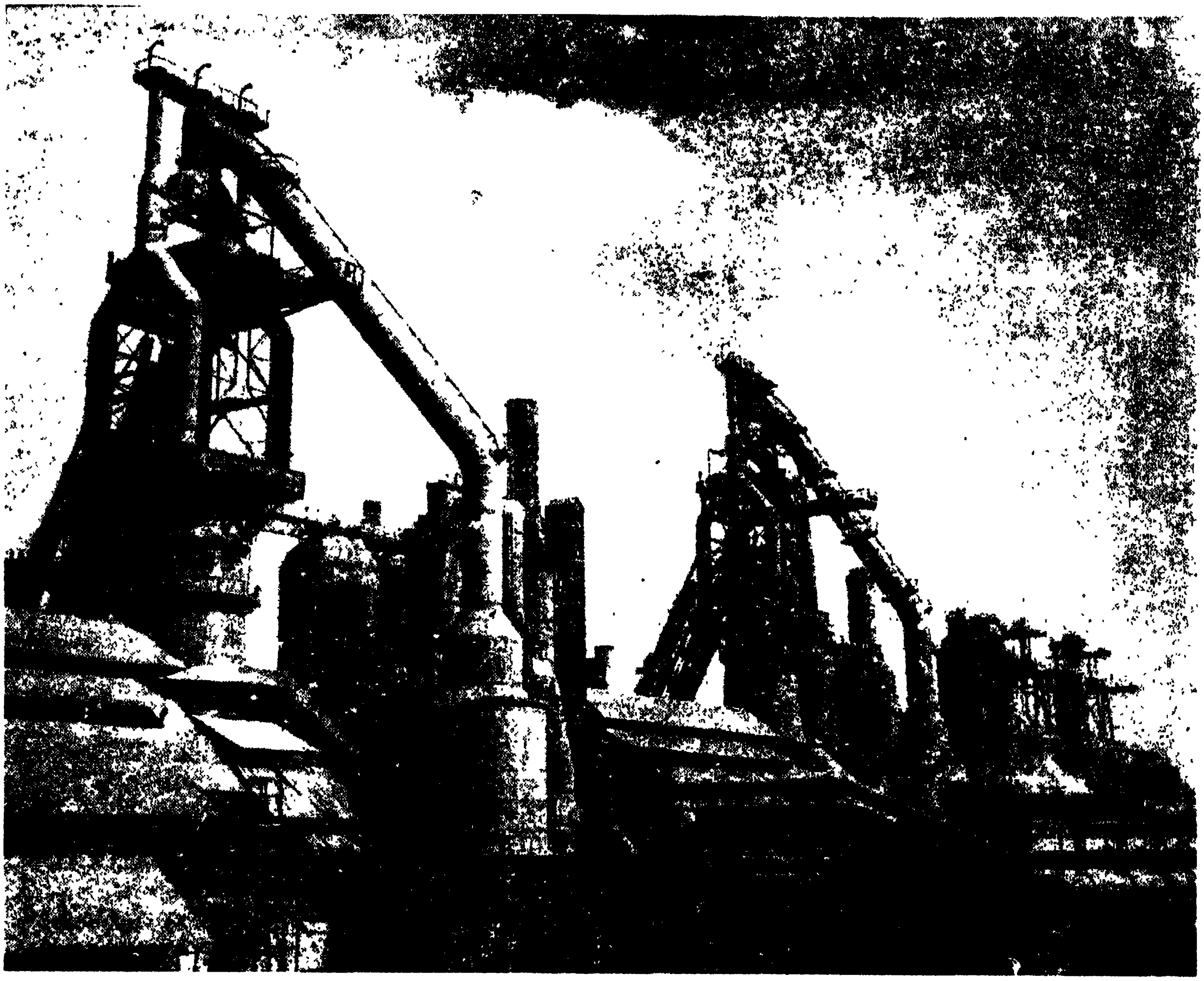


Blast Furnace at IISCO, Burnpur (Courtesy IISCO)

now, to stand if they could (some tried, amongst them the largest and most powerful, Hyderabad) against the government of the newly independent former "British India".

That was the state of affairs in April 1948, when few if any dared to predict what the outcome of all this would be. It needed the courage and the vision of a Nehru, to make no delay in setting forth a declaration of policy in the confused and confusing economic and industrial scene on the country. But the declaration of April 1948 also bears the mark of all that was happening in more urgent demands upon the government's attention and resources.

Thus it came about that this first major declaration of industrial policy was somewhat tentative, somewhat compromising, something that came to mean all things to all people. It spoke of State participation in industry; of the need to let private industry go forward in creating national wealth; the State was to concentrate on new units of production, in fields other than those in private hands where the State could help by expanding their present activities; there was to be no taking over or running by the State of any existing units. The hard experience of the years has since then compelled the government to go for nationalisation in several of the most vital sectors of trade and industry.

In the matter of iron and steel, the State would be responsible for the establishment of new undertakings, but would also where the national interest so dictated ("national interest" would be seen in entirely different ways by different ministers, officials, planners when it came to taking decisions), co-operate with the private sector. Thus, a major expansion of a private steelworks was taken in hand even before there was any talk of having a major steelworks in the public sector. The government committed itself to allow private enterprises in iron and steel, amongst others, to be given all facilities for efficient working and reasonable expansion. Although the situation would be reviewed after ten years, the government felt it necessary, in the policy declaration, to assure the private sector against any future acquisition by the government. (In 1951 the government, in the agreements with the three foreign oil companies for setting up entirely new, not existing, refineries, not only gave several fiscal and other benefits, but also a categorical guarantee against nationalisation for a period of twenty five years).

Eight years later, in April 1956, Prime Minister Jawaharlal Nehru took a more direct hand in the drafting of the industrial policy of that date. He was also Chairman of the Planning Commission, although he left the planners mainly to their own devices. But when they produced a draft which once again promised all things to all people, he apparently had had enough. There was also the experience gained so far; and no less significant, the crucial issues arising out of the conflicts of bias, interest, ideology and the rest had crystallised out sufficiently to permit a more definite, clear-cut declaration of Industrial policy.

The 1956 policy declaration marked out a number of basic industries, amongst them iron and steel, in which the State would be exclusively responsible for the setting up of new enterprises. It was this that cleared they way for the future of the public sector steel industry at last. For there had been bitter controversy over the Indo-Soviet steel agreement for Bhilai; and the new declaration placed the whole issue beyond further dispute at least for the time being.

In February 1973, when Mrs. Indira Gandhi was Prime Minister, having first fought off an attack upon the policies that her father had initiated and had herself by now placed in a powerful position after the general elections of 1971 and the successful war with Pakistan of that year her government issued a declaration of policy in the form of a press note, an elaborate restatement of the 1956 declaration. It referred expressly to the Directive Principles of State Policy of the Constitution, to Parliament's own resolution of December 1954 declaring the socialist pattern of society as the objective of social and economic policy, and stated that the 1956 policy statement would continue to govern the future policies of the government. Steel would be reserved to the public sector.

In 1978, a government of a very different texture was in office under a Prime Minister (Mr. Morarji Desai) who had been a bitter opponent of the public sector and whose stand against bank nationalisation had brought about his own removal from the office of Finance Minister and had in turn split the Congress Party down the middle in 1969. Nevertheless, there was by now no turning the clock back. The public sector was by now so well established, and so much was invested in the large number of public undertakings, both by the Central Government and by the governments of the different States of the Union, that it would have been futile for any government to try and reverse the process. And so, in that government's own declaration of policy, the dominating position of the public sector as the prime vehicle for the country's industrial development remained untouched.

After that government fell, in the general elections of early 1980, and that indomitable figure in the form of Nehru's daughter, Mrs Indira Gandhi, was returned to office with an overwhelming mandate from the people, the position of the public sector, and the general direction of social and economic policy was more fully resumed. This is reflected in the Framework of the Sixth Plan, (1980-85) formulated by the Planning Commission in the latter half of 1980.

Since, it is this Framework that is to form the basis of the government decision making during the next five years, it is worth taking note of the categorical statement in it, that the leading role of the public sector in the industrial development of this country will be further strengthened. Top priority is to be given to the creation of adequate capacity in basic industries, such as steel. The public sector is to assume the major role in the expansion of the basic industries, and the Plan will provide increased outlays for this purpose in the public sector. Steel production is to be stepped up from 7.4 million tons in 1979-80 to 11.7 million tons in 1984-85. Not an over-ambitious target by any means; but already showing the rate of increase, so that the woefully flat curve of the earlier period is beginning to lift significantly

Planning

From policy to planning.

In 1954, the sum total of the Planning Commission's provision for that plan period was some 200 thousand tons of pig iron. No steel at all, not in the public sector. This was apparently to be left to the existing steelworks, of which there were : the Tata Iron and Steel Company at Tatanagar in Bihar, the Indian Iron and Steel Company in Burnpur in Bengal, and a small charcoalfed steelworks in the south, at Bhadrawati in Karnataka. The stalwarts of the Planning Commission seemed to share the restrictive views of that same western emissary I have mentioned above.

The Prime Minister would not have it. He had set up a special Ministry, the Production Ministry, with the special purpose of increasing the scope of the public sector. This Ministry took under its wing a number of units that were already in the public sector. There were very few of them; the Sindri Fertilizer Factory, the Hindustan Machine Tools Factory in Bangalore, the small cable factory in Rupnarainpur in West Bengal and one or two others.

The Secretary of this Ministry was sent abroad, to see what could be done about setting up a steelworks in the public sector. In the natural order of things, he went first to London, and put the proposition before the concerned Ministry of the British Government, the Board of Trade. He was given a short answer : not interested Then to West Germany, where the response was a little better

A consortium of German firms undertook to set up a half million ton steelworks at Rourkela, to produce flat products. The whole project was to be set up on a turn-key basis, with little or no association with the German firms of Indian personnel during the designing or erection stages. Nor were any substantial number of Indians to be trained, so that they might be able to run the steelworks.

Then the Prime Minister went to Russia, on a friendly state visit. The visit proved of seminal import. Soon the Russians expressed their readiness to help this country in its industrial effort, in the public sector, and on a strictly mutual basis, with no strings attached. The first project was to be a steelworks. And the Bhilai Steel Agreement came about

Not without further struggles. The Russian bogey was duly paraded, to kill the idea at conception. The "experts" whom the Government consulted advised a small half-million ton plant, with small blast furnaces, when the world was already going over to much larger blast furnaces, one of which was in fact in process of being built in one of the two existing steelworks in India. And for the product mix, the same experts advised an impossibly uneconomic mix altogether, not omitting 75 thousand tons of "H" beams, which would have crippled the whole project both technically and financially. The details of these struggles need not detain us now. The future is always difficult to prove, as indeed it was at the time; when but for the determined backing of the Prime Minister the whole thing, as indeed the public sector, would have been still-born.

The Soviet specialists gave very different advice and it was backed by their knowledge that this first project must succeed, must not be allowed to fail. They advised 1000 ton blast furnaces, instead of the 650 ton furnaces current until then. They told us that anything less than a million ton plant would be uneconomic; and they gave us the inside details of what a proper and balanced product mix is all about, and how this would better meet the needs of industry in other sectors, such as the railways, construction of factories and buildings, and so on.

In the end, this advice prevailed. The Bhilai agreement was concluded. Unlike Rourkela and other such turn-key projects, the agreement provided for the close association of Indian technical personnel at every stage from the earliest design stages, through construction at Bhilai, (the construction certificates for every detail to be cleared and signed by Indian technical personnel; and there was made provision for the training of a massive cadre of Indian technicians aand engineers in the different steel factories and associated enterprises in the Soviet Union.

And now a series of seemingly strange developments took place. They followed the return of the Indian Steel Mission to the Soviet Union in August-September of 1965, following the signing of the Bhilai agreement. The Mission was led by the Secretary in the Ministry of Production who had negotiated the agreement, and consisted of a number of top-level Indian technologists of various specialities and drawn from the existing steelworks and engineering undertakings in India. The Mission's report, giving a vast amount of cogent details about the Soviet steel industry and of their heavy engineering, machine-making, and heavy electricals plants. It set at rest many of the doubts and misgivings that had been expressed about the proposed Bhilai steelworks.

But that was not all. The German consortium working for the Rourkela project now found it necessary to request the scrapping of their own working plans for the half-million tons steelworks, and for the re-negotiation of their contract so as to provide for a million ton plant, and for the very same large size blast furnaces which the Russians had recommended for Bhilai. And so the Rourkela project was duly re-designed, and a new agreement with the Germans concluded. But it meant the loss of valuable time a loss that must inevitably fall upon the Indian exchequer and upon the speed of the overall industrial effort of the nation.

And now the British in their turn came forward, not to be left behind. They apparently now discovered that this country needed not merely the comparatively small amount of steel that would have been produced by the earlier plans and the approach to the Board of Trade; now they said India would need in quick time no less than three major steelworks, each of a million ton capacity, and all to be established at the same time. And of course, Rourkela and Bhilai having been pre-empted, the British proposed a million ton plant at Durgapur in Bengal, to be set up with their help. And so, yet another steelworks agreement was concluded, within that short time span, as against that 200 thousand tons of pig iron that was the sum of the Planning Commission's plan.

Some time later, the Americans too came forward, and a strong mission arrived from that country, to negotiate the setting up of yet another major steelworks, this time at Bokaro in Bihar and like Durgapur close to the large coal deposits in that area. These negotiations went up for a long time. The Americans insisted upon having control of the management of the steelworks while on the other hand, the Indian Minister of Steel had seen for himself the aptitude that Indian personnel had already shown in the setting up and management of steelworks, and indeed of by now a whole variety of major industrial enterprises. Ultimately the negotiations broke down, mainly on this single issue. Much time had been lost in the process. In the end, it was the Soviet Union once again that was called upon to assist in setting up the steelworks at Bokaro.

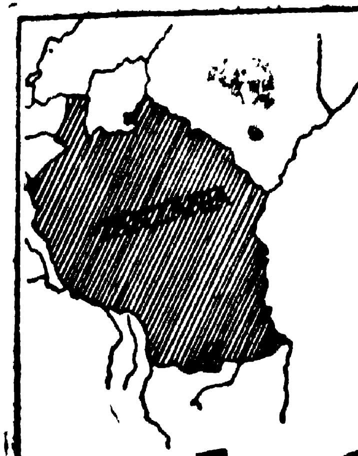
Performance

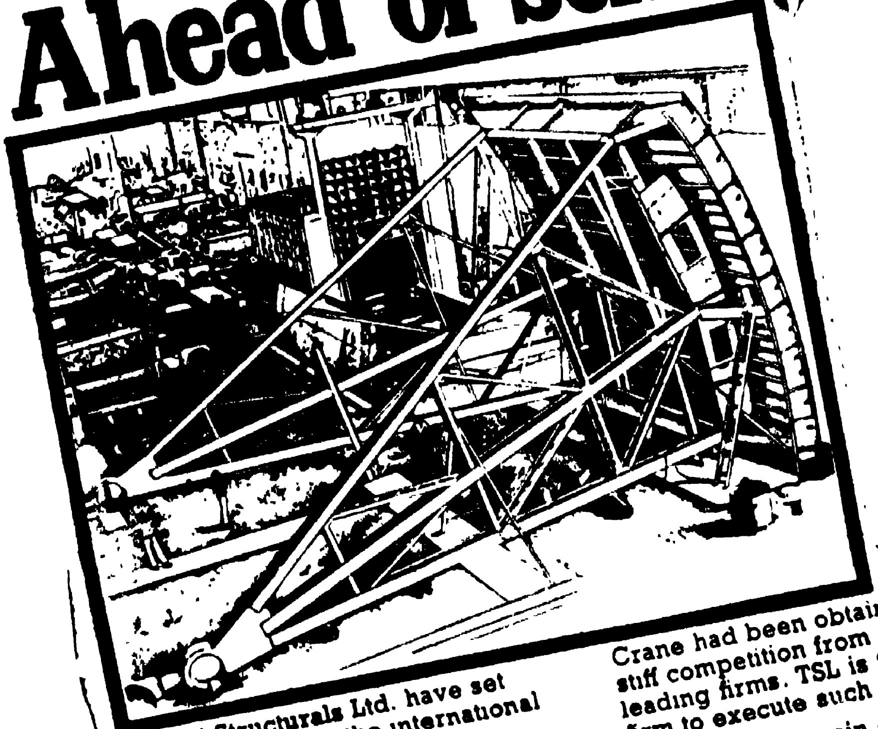
How have all these projects performed over the years? Except for the loss of time, it has been a fortunate circumstance that no major shortcomings got built into their planning, as nearly happened. On the whole, all the new projects were well designed, with scope for some expansion in due course, together with the supporting inputs of materials and services. But capacity utlisation has not been satisfactory, for a variety of causes, which have not always been the result of faulty management. During the year 1978-79, against an installed capacity of 9.4 million tons, the production was only 6.3 million tons of finished steel. It can be no consolation that even in America with all their modern systems, their steel industry worked for several years at less than sixty per cent capacity. The gap between capacity and output presents almost the most formidable challenge to the managements of the public sector steelworks. It is also futile to point to the failure and final breakdown of one of the two major steelworks in the private sector, the Indian Iron and Steel Company, which went down the drain and took with it the hard-earned investments of large numbers of the public in the shares of the company.

A searching inquiry has been instituted during 1980 in the Planning Commission, into the working of the public sector undertakings. Why has capacity utilisation been so consistently low for so long. Between 1973 and 1979 it has stayed around some sixty five per cent.

It is not so much the structural arrangements for management and control that appear to be the main cause; although the system of a central holding company is probably the weakest of all arranagements for effective management. It is here that it is desirable to carry out a detailed investigation in the form of inter-firm comparisons all along the line. This would probably show more than any other method where the real weaknesses lie, and the way to overcome them.

The public investments in the steel industry are so large, and will increase even more during the coming years, that it should be seen as of the utmost urgency, to improve the productivity of these great undertakings. Even marginal improvements are to be welcomed, while the deeper, fuller investigation is in process. □





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Steel Looks Up

K. C. Khanna*

AFTER a steady drop in steel production for over two year there has been a considerable pick up during the months of October and November, 1980. The steady upward trend is being maintained. The plants under the SAIL aggregated to 5.37 million tonnes of saleable steel in 1976-77 with a monthly average of saleable steel in 1976-77 with a monthly average of 447,600 tonnes. This has been the highest level achieved by our plants so far. Production dropped to 5.29 million tonnes in 1977-78 with a monthly average of 441,100 tonnes. In 1978-79 the aggregate production was 5.08 million tonnes with a monthly average of 423;500 tonnes. In 1979-80 the aggregate production slumped to 4.59 million tonnes with a monthly average of 382,700 tonnes. In the first half of the current financial year the monthly average came down to 330,000 tonnes only falling to a low level of 319,000 tonnes in September 1980. In October the SAIL plants aggregated to 406,000 tonnes of saleable steel which went up further to 420,000 tonnes in November, thus registering an increase of 90,000 tonnes over the average production of first six months this year, an increase of 27 per cent.

Steel production suffered a setback due to a gradual and steep decline in the availability of coking coal and power. Alongwith the imbalances caused during 1978 and 1979 in these two very vital sectors which provide the life-giving energy to our industries, the third important link to support the industrial base i.e., the railways, also got trapped in the vicious circle. Inadequacy of these three vital inputs has had a crippling effect on our steel industry which in turn affected the steel consuming sectors.

To grapple with this very complicated problem, government took command of the situation at the highest levels. Problems of this magnitude and dimensions when allowed to persist for as long as over two years, they do assume serious proportions and focal points get multiplied. Then there has been a definite improvement in producion of coal and its transport to consuming centres as well as in generation of power in the DVC net work which is reflected in the upward trend in steel production during the last two months. It also shows that the steps taken by the government have started bearing fruits.

Constraints

The constraints of inputs and transportation create imbalances in operations of steel plants. Power restrictions on our rolling mills resulted in a pile up of ingots and slabs. Against a normal stock of about 100,000 to 150,000 tonnes of cold ingots which our plants can hold, the stocks went up to 737,000 tonnes by the end of July 1980. Stocks of slabs went upto 131,000 tonnes. Apart from choking up the storage yards this huge stock also meant block up of capital to the tune of nearly Rs. 75 crores plus added burden of high interest incidence. It is a serious financial burden on our resources which are already under great strains due to low production in the past and mounting cost escalation.

Inadequacy of three vital inputs like coking coal, power and the railways has had a crippling effect on steel industry which in turn effected the steel consuming sectors.

Faced with this ugly situation it was decided to change the operation strategies from August onwards. Instead of emphasising on tonnage production of ingots plants were asked to maximise pig iron production and to stagger operations of rolling mills depending on power availability to maximise conversion of heldover ingots and slabs to saleable steel. The plants at Bhilai and Rourkela were accorded preference for supply of imported coal for optimum utilisation of this costlier raw material. The strategy paid in triple advantage of reducing ingot stocks, making more saleable steel available to economy and increasing output of pig iron for sale. It had not been an easy task to bring down ingot stock holding from the level of 737,000 tonnes to less than 6 lakh tonnes in the course of just four months. Steps have also been taken to strengthen the steel cadre by filling up posts of Directors which had been vacant for two to three years. Groups of experts are being created with experienced personnel in different disciplines whose expertise and skill will be available to all the plants in times of crisis.

This year so far we have produced nearly 900,000 tonnes of pig iron for sale. Compared to the target, this is 63,000 tonnes in excess. Last year during the corresponding period production was just over 600,000 tonnes. We are planning to produce over 1.3 million tonnes of pig iron this year. With the emphasis on saleable steel production and continued efforts to reduce the stock of cold ingots and slabs in our own mills as well as through-re-rollers after cutting the slabs to cheeses we plan to further increase availability of steel for domestic consumers in coming months. Rourkela Steel Plant has picked up production substantially. With imporved power supply Bokaro can pick up much more. This would further improve availability of flat products, pace for which has already been set. In October, availability of steel for domestic supply was 8 per cent more than what it was in September. In November this has gone up further.

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* Chairman, Steel Authority of India Ltd.

Trying Conditions

Those who are familiar with the operations of steel plants would appreciate the efforts that have been put in by our men of steel operating these complex and sophisticated plants. When going is good and rhythm is set with continuous supply of inputs in quantity and quality the equipment response is ideal and tranquility prevails in a steel plant. Productivity is at its peak then. A slight departure from the norms like a momentary tripping of a motor in a rolling mill or change of carbonisation period in coke ovens or a change in the quality of the blast furnace burden sets a chain reaction in motion. This calls for a steelman to strain his every nerve to keep control on the situation. It takes very long time to restore normalcy. When such instances become daily routine to adjust ever pushing rates, operate with ever changing blast furnace burden, face frequent trippings without warnings, one could imagine the chaos caused in the different shops of the plants. This has been the scene in our plants for quite some time now.

Under these trying conditions when they have been called upon to cope with frequent interruptions, carry out adjustments in operations, shut down and recommission frequently units of complex nature like blast furnaces and coke ovens, our men in the plants have shown a commendable spirit of endurance and application. They have kept themselves and their equipment in readiness to respond to improvements in supplies of inputs. The immediate pick up in October and November is indicative of this.

By the end of September 1980 our plants were trailing behind the previous year's production of saleable steel during the corresponding period by 210,000 tonnes. In two months we have narrowed this gap to 147,000 tonnes. We know this is quite a margin to be covered in next four months but we are confident that given steady and requisite supply of power to our plants at Bokaro, Durgapur and Burnpur and with current levels of supplies maintained at Rourkela and Bhilai we will be able to cover the gap substantially, and even level up with last year's production of saleable steel. The nightmare seems to be over. Our plants are looking up. The ground that has been lost is substantial, yet we move ahead with confidence that the pace set in now would enable us to contain the losses and pay dividends next year. ☐

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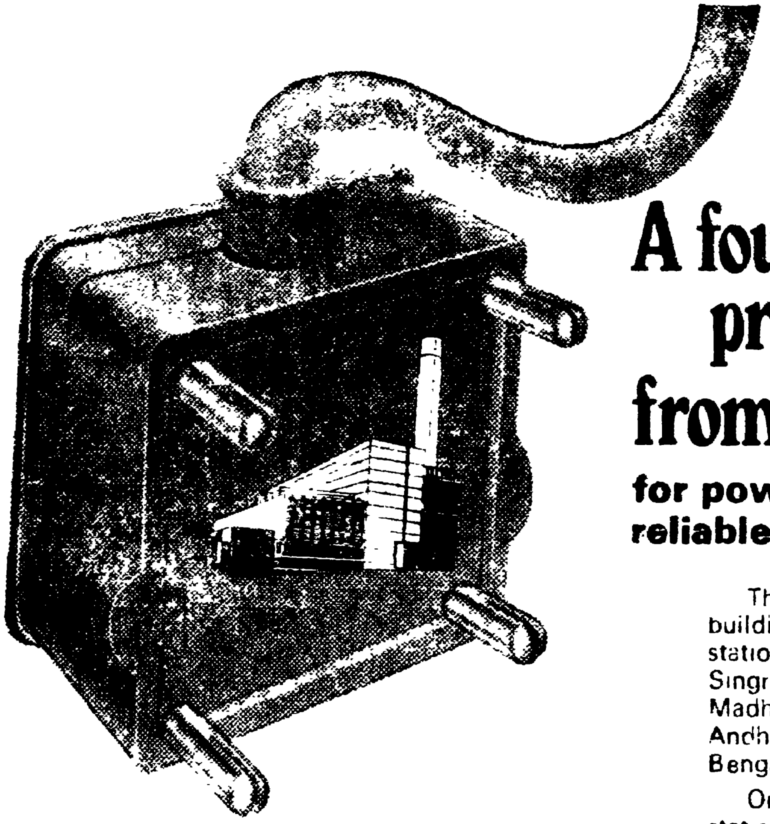

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Problem of Coal and Power

Gopesh N. Mehra*

INDIA's economy is still reeling under the unprecedented power crises which erupted in 1979 and enveloped the entire industrial and power scene in their wide-sweeping octopus-like tentacles. The sudden fall in production of coal and accumulation of available stocks near pitheads for want of movement facility left an indelible mark on the productivity and output of almost all major public and private sector enterprises. The loss in terms of man-days lost was simply colossal since the paucity of power left industries, both big and small, at a standstill.

In the days of oil crisis when not only the availability of oil but its prices as well have put severe constraints on the resources of particularly the Third world countries, the world's attention has been focussed on coal as an alternative to the vanishing oil and it has been thought prudent even by the so-called developed nations to affect drastic technological changes to return to the coal-based character of their industry.

The abundance of coal reserves has been a heartening feature indeed but the constraints of movement and general sluggishness on the power generation scene have severely hampered quick recovery even in those countries where large reserves of mined coal existed.

This peculiar situation which inhibits the Indian scene also prompted the Prime Minister, Shrimati Indira Gandhi, to have a meeting of the Chief Coal executives convened in New Delhi in order to assess, analyse and demarcate areas of action to enable the country to achieve the required growth and development in various fields.

The main points Shrimati Gandhi raised at this high-level coal sector meeting were (a) the main reasons for stagnation in coal production, (b) the possibilities of mechanisation of coal mining with a view to optimising productivity, (c) re-inforcing the safety factor at coal mines, (d) stopping pilferages from pit-heads as well as during wagon movement and storages and (e) generally tightening the law and order situation in the collieries.

Among the top executives present at the meeting with the Prime Minister included Shri R.P. Khosla, Additional Secretary in the Department of Coal and Shri R. N. Sharma, Chaiman of Coal India Limited. These executives opined at the meeting that from Indications now available the coal production target during the current year may be met by Coal India subsidiaries as a whole. Individually, however, some problems persisted with the Bharat Coking Coal Ltd., and the Eastern Coalfields Ltd. These problems are hampering their normal functioning. The executives however assured the Prime Minister that production of coal in the Central and Western Coalfields had increased impressively. Coal India estimated its production to reach the 99 million tonnes mark this year as against 91 million tonnes produced by them last year. They expect the production to go up to 109 million tonnes in the coming year. The all-India production of coal was expected to be around 113.5 million tonnes this year as against the figure of 104 million tonnes last year.

As against these projections, a study on coal situation made by the Federation of Indian Chambers of Commerce and Industry (FICCI) points out that there has been no appreciable increase in coal production during past many months despite additional investments amounting to as much as Rs. 600 crores in the major coal undertakings. Analysing their output the FICCI survey points out that losses of these undertaking have been mounting. The quantum of losses accumulated by the Coal India by 1979-80 were of the order of Rs. 695 crores and the production had, even in 1979-80, fallen short of the target by almost 20 million tonnes—a target which had been originally fixed for 1976-77.

As against the production target of 113.5 million tonnes of coal, the demand by 1982-83 is expected to go up to around 150 million tonnes. The FICCI study team feels that the task ahead of the coal industry looks unattainable when viewed against the numerous probems that plague this industry and its very poor performance during past years.

Significant shortfalls in the production of coal at many of the collieries are attributed to : (i) Non-availability of power; (ii) Labour unrest; (iii) Inadequate availability of explosives; (iv) shortage of diesel; (v) Bad law and order situation in the Eastern region; and (vi) Difficulties in acquiring land for the development of new coal mines.

The uncertainty about coal position has been causing innumerable hardships to the consumers. In fact both the coal Industry and the Railways are to blame for these problems. The production of 103 million tonnes is hardly adequate to meet the total demand of various consumers and the wagon fleet at the disposal of railways is not adequate to move more coal. It is pointed out that both have suffered as a result of complacency after a period of achievements in 1975-76.

20 Year Projections

In the 20-year projections until 2000 AD the pattern of demand for various forms of energy for industrial and other use is estimated as follows :

Source of energy	1982-83	1987-88	1992-93	2000-2001
Coal (Million Tonnes) . .	150.4	208.3	273.5	427.00
Oil (Million Tonnes)	35.38	40.97	48.3	69.11
Electricity (Billion units)	155.2	207.9	281.0	457.6

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* Chief Industrial Correspondent, United News of India.

Considering the performance of the power sector, the total electricity generation during 1979-80 was 105.45 billion units as against 103.32 billion units generated in the corresponding period during previous year. Thermal generation increased by 6.83 per cent while hydel generation dropped by 3.48 per cent resulting in an overall growth of only 2.12 per cent. The failure of the monsoon in 1979 undoubtedly curtailed hydro availability. However, shortage of power continues to be acute mainly due to the under-utilisation of the thermal capacity.

Some of the basic problems experienced in the power sector are : (a) Delays in project formulation and implementation. Completion of many super thermal power stations on present indications is likely to spill over well beyond the 1980-85 period. It is also doubtful whether the Bharat Heavy Electrical Ltd., on whom most of the orders for plant and machinery have been placed. would be able to adhere to delivery schedules.

(b) Under-utilisation of the installed capacity. The plant load factor for thermal stations had come down from 56 per cent in 1976-77 to 44.7 per cent in 1979-80. The availability factor has also come down from 77 per cent in 1976 to 68.9 per cent in 1979. The under-utilisation of the capacity is attributable mainly to the increase in the rate of forced outages from 8.8 per cent in 1973-74 to 18.8 per cent in 1979-80 and also to the non-availability of coal of the right quality.

(c) Increase in transmission and distribution losses which have risen to 19.8 per cent in 1979-80 as against 17 per cent in 1975-76, and (d) Poor financial health of the State Electricity Boards which among themselves have accumulated losses worth more than Rs. 1000 crores.

Energy Problem

The Energy problem in the country is further aggravated by the present state of health of the Atomic Power plants and the indifferent supply position of essential inputs such as enriched uranium. The total generation capacity of these plants today is 660 MW. barely 1 to 2 per cent of the country's total capacity, which should have gone up to 2,700 MW by now. The Department of Atomic Energy has projected in its 20-years perspective plan a total generation capacity of 10,150 MW by the end of the century. This would be about 16 per cent of the total generation in the country from all sources. To attain this objective the DAE proposes to set up 10 more pressurised heavy water reactors on the pattern of Kalpakkam by 1994. The plants at Tarapur, Kota and Narora have already been commissioned. Resources mobilisation for most of the DAE's future plans is perhaps the biggest constraint apart from availability of essential inputs. An outlay of Rs 2,410 crores is envisaged for plans bracketed for execution until 1985 itself. This and the present state of most of the Nuclear fuelled plants cause serious doubts whether the atomic power generation would be able to adequately supplement other sources of power supply available in the country.

Energy conservation purports to be an important additional source of energy in line with power, oil or coal. Potential in this field is immense. Its two-pronged strategy is aimed at (a) economising the use of all forms of energy and (b) conservation of fossil fuels through greater and more intensive use of renewable sources of energy. □

Economy in the use of energy can be obtained by (i) Reducing the energy intensity of industrial technologies without sacrificing productivity and quality; (ii) by avoiding wasteful uses through proper insulation, monitoring of fuel consumption; (iii) evolving methods of recovering energy from out of the existing processes and (iv) by adoption of the total energy concept.

Deployment of Renewable Sources

A permanent solution to conservation of fosil fuels is provided by the deployment of renewable sources of energy and intensive research needs to be undertaken in fields such as solar energy, geo-thermal energy, micro-hydro projects, gobar gas and substitution of oil by alcohol to make optimum use of these alternatives.

The energy problems in the country are further aggravated by the present state of health of the atomic power plants and the indifferent supply position of essential inputs such as enriched uranium.

Efficiency in the distribution of coal can be injected by making coal meant for consumers to be free of shale, stone and other foreign materials. The ash concent of coal must be reduced to the minimum so as to lessen the strain on its movement. It is desirable to set up coal dumps all over the country. These could be used as a sort of buffer to hedge against the strain on either railways or on the stocks at the pit-heads during the busy season. Whenever possible coal should be despatched directly from the pit-heads. The working of the coal mines could also be vastly improved by introducing certain amount of competition. The existing organisation of Coal India could also be restructured in order to create competition.

In the power sector a better generation can be achieved by improving capacity utilisation through improvement of the plant load factor and the availability factor at thermal power stations. A 5-6 per cent improvement in the availability of power could be achieved through flattening of the load curve. To achieve this measures such as staggering of off-days, proper phasing out of annual maintenance in major industries, and introduction of night shifts in industries could be adopted. It is also necessary to bring down the transmission distribution losses to a maximum level of 15 per cent. Also drastic improvements in the performance of the State Electricity Boards, both operational and financial, would go a long way in impower for the coal industry.

To eliminate the constraints specially in the coal sector and to step up coal production still further the government has already moved in the direction of improving and augmenting power output to coal fields. In this connection there is a plan to set up five to 10 MW gas turbine sets in the coal fields and also to instal captive thermal power stations to supply 60 to 120 MW of power to meet the full demand of power for the coal-industry.

A total and well-coordinated effort is necessary to see that the existing constraints are speedily removed and the general state of economy of the country is again geared up to tackle the immediate objectives of planned growth. □

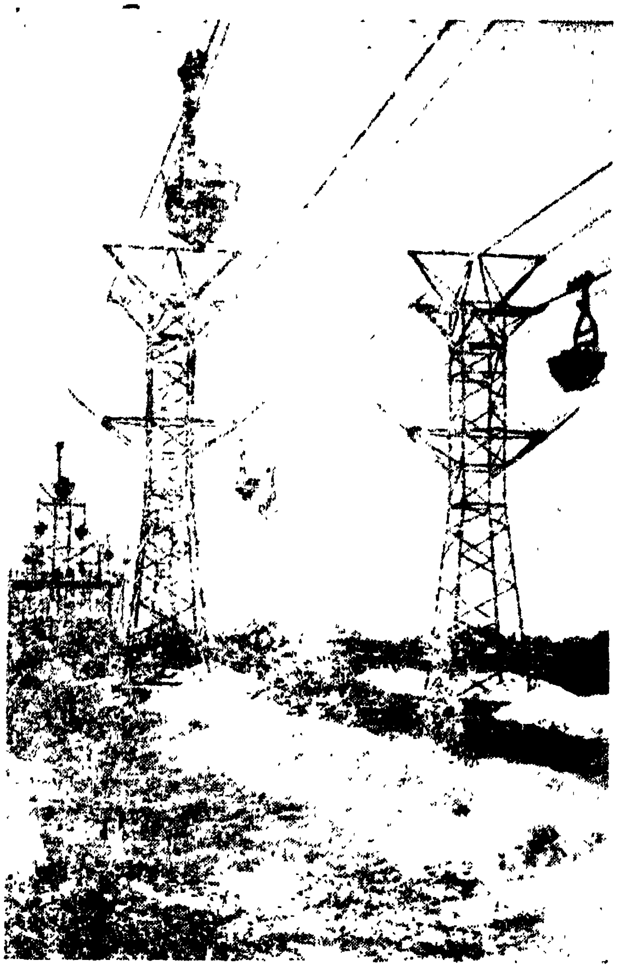
Coal India

COAL India Ltd., (CIL) as a holding company, was formed on 1st November, 1975, which was made responsible for the management of the nationalised coal mining sector. The formation of the CIL created an opportunity for total planning on a scientific basis to exploit the country's coal reserves.

Today about 88 per cent of the country's coal production is from the CIL mines. Coal India has a work force of about 6 lakhs and its annual output is around 100 million tonnes against 70 million tonnes in 1973-74. The total demand on the CIL mines are to be 144 million tonnes by 1984-85 and 216 million tonnes by 1989-90 according to the Planning Commission. While the Company spent Rs. 832 crores upto 1974-79, it is working on a total investment of Rs. 1156 crores during the period 1974-80. The investments are envisaged to go up to Rs. 2273 crores by the year 1984-85. As far as the demand is concerned, the projections show that the growth of coal demand will be much faster in the power sector compared to others.

The new projects which have been taken up in the last two-three years will contribute about a fourth of total coal production in the country by 1982-83. By 1987-88, their contribution will increase to about 56 per cent of coal production.

Right : Ropeway carrying Sand from the river beds to Sand dumps of Eastern Coalfields Ltd. Below Umirer Open cast Coal mine of Western Coalfields Ltd.



The CIL anticipates a manpower increase of 15 per cent between the existing level and 1985 against an expected production increase by about 59 per cent during this period. This is attributable to improved productivity. In the year 1980-81, CIL would be training more than 61,000 persons from all levels which would go up to more than 68,000 by 1984-85.

CIL is developing and appropriate stocking policy to ensure optimal distribution gradewise, sizewise and sectorwise. Adequate marketing service network throughout the country is being developed by the Company for promotional and advisory services to the consumers. New products like smokeless fuels are being developed and promoted.

Round-up

Punjab National Bank

PUNJAB National Bank (PNB) was established in April 1895 with Indian Capital, Indian Control and Indian Management. Since then, the Bank has weathered many a storm, including the devasting partition when about 100 offices in West Pakistan, with 40 per cent of the deposits were closed down.

On 19 July 1969, the bank was nationalised along with 13 other banks. The number of branches has jumped from 569 as on the date of nationalisation to 1620 as on 30 September 1980, besides 3 offices in U.K. About 43.3 per cent of the branches are in rural areas. Since nationalisation, the Bank's aggregate deposits have risen from Rs. 355 crores to Rs. 2242 crores as on 30 September 1980 registering a nincrease of about 532 per cent. In the matter of Indian deposits and credit, the PNB stands second amongst 14 nationalised banks.

The total credit portfolio of the bank improved from Rs. 243 crores as on the date of nationalisation to over Rs. 1300 crores by end of September 1980. The bank has financed diverse fields of activities. The outstanding credit to agriculture as in September 1980 stand at Rs. 202 crores. The priority sector credit and the agricultural advances formed 36.5 per cent and 16.4 per cent respectively of the total credit.

While promoting the priority sector advances, the bank has taken special care of adequate credit flow to the weakest of the weak at very liberal terms. For loans upto Rs. 5,000 no margin or guarantee or security other than that purchased from the loan given by the bank is asked for from weaker sections. Similarly for loans to artisans and small SSI units upto Rs. 25,000 the bank does not require any margin or surety. Punjab National Bank has been arranging mass loaning functions where intensive financing is done in an identified area. The effort is made to cover as many eligible borrowers as possible. Usually, in a function about 1000 loans are distributed, the amount of which vary from Rs. 50 to Rs. 100 lakhs. In the past few months, loans were disbursed to about 32,000 persons amounting to Rs. 29 crores. The bank has also assisted the helpless and the weakest. About 250 nomads in Sunam (Punjab) were financed with a view to provide them regular income at a fixed place or work. Similarly to divert the beggars to productive activities, almost fifty of them were financed in Ambala. The organisations for the handicapped are also being encouraged to take up such manufacturing/servicing activities which can be handed by their inhabitants and the bank provides finance to them both for machines and the raw material. Housewives are also provided credit so that they can employ their idle time in activities like knitting, embroidery, tailoring, etc. and supplement the income of the family.

Chairman of M.D. of PNB giving away pigs to weaker sections

Under the Differential Rate of Interest Scheme loans are provided to the weaker sections of the society at concessional rate of interest of 4 per cent. The bank has so far advanced Rs 1460 lakhs under this scheme.

Under the Lead Bank Scheme 41 districts have been allotted to the PNB in the States of Haryana, Bihar, U.P., H.P., Punjab, Rajasthan, M.P., and UT of Chandigarh. It has opened 616 offices in these districts. The PNB has sponsored seven Regional Rural Banks The PNB has sponsored seven Regional Rural Banks (one each in H.P., U.P., Rajasthan, Haryana and three in Bihar States.). Two more, one in U.P. and one in Rajasthan, are being opened shortly. Due to proper support these banks are developing very steadily.

The PNB established a special Defence Service Welfare Cell to provide banking facilities to defence personnel at liberal terms. It has also provided employment to ex-servicemen at various levels.

An interior view of Silo with Urea heaped in Neyveli Project.

Round Up

Neyveli Lignite Project

THE Neyveli Lignite Project is one of the biggest public sector enterprises, situated in South Arcot District of Tamil Nadu with an investment of over Rs. 250 crore. The various constituent units of the Complex are :—

1 an opencast lignite mine which is being developed to produce 6.5 million tonnes of lignite per annum.

2 a 600 MW lignite-fired thermal power station ;

3 a large fertilizer plant, manufacturing urea with a capacity of 1,52,000 tonnes per annum, and

4. a briquetting and carbonisation plant to produce 3,27,000 tonnes of carbonised briquettes and other important basic organic chemicals.

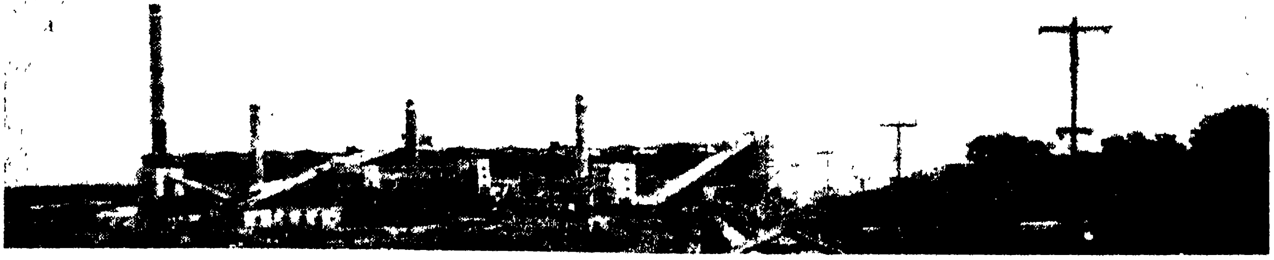
Lignite is an inferior form of coal. Extensive deposits of the order of 3,300 million tonnes spread over an area of 480 sq. kms in and around Neyveli are available for exploitation. An area of 15 sq. kms. has been selected for mining lignite now

With a view to attaining the annual target of 6.5 million tonnes of lignite, as against the previous production of 3.5 million tonnes of lignite per annum, additional specialised mining equipment of higher capacities at a cost of Rs. 129 crore have recently been procured and their operation is in full swing. The lignite production has picked up in the current year and will stabilise in the next two years at 6.5 million tonnes per annum

The 600 MW Neyveli Thermal Power Station was constructed in a phased manner and has been set up with Soviet financial and technical assistance. This station consists of six units of 50 MW each and three units of 100 MW each. The entire power generated after meeting the needs of the power station auxiliaries and the project, is fed into the state power grid. Neyveli supplies about 40 per cent of the needs in Tamil Nadu. The gross power generation in the year upto October 1980 at Neyveli is the highest for any power station in the country. The NLC is not only feeding increased quantities of power into the Tamil Nadu Grid but is also generating power at a cost which is very low-cheapest in our country.

The Neyveli Fertilizer Plant is designed to produce 1,52,000 tonnes of urea per annum. As the plant's optimal capacity utilisation could not be achieved, because of some technological problems in the gasification and purification stages, a scheme for the change-over of the feed-stock from lignite to fuel oil at a cost of Rs. 17.05 crore has been put through. This plant which switched over to fuel oil gasification ever since the middle of 1979 has stabilised its production within a short period and is giving a very good account of itself. The plant has been working above the rated capacity of 465 tonnes per day for long stretches and is thus well geared to optimal working.

The capacity of the B&C plant is 3,27,000 tonnes of "leco", carbonised briquettes per annum, which is used as a domestic and industrial fuel. Further, the gas



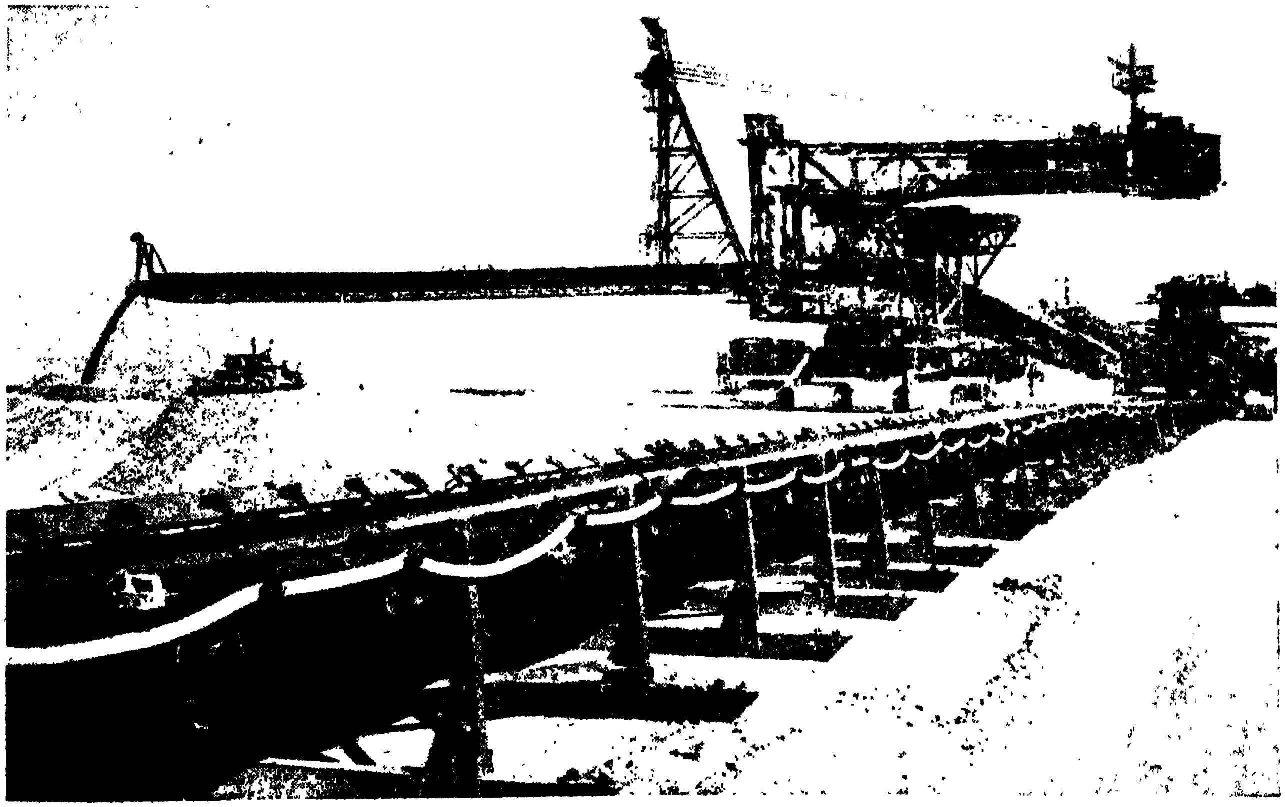
A view of the 600 MW Thermal Power Station at Neyveli.

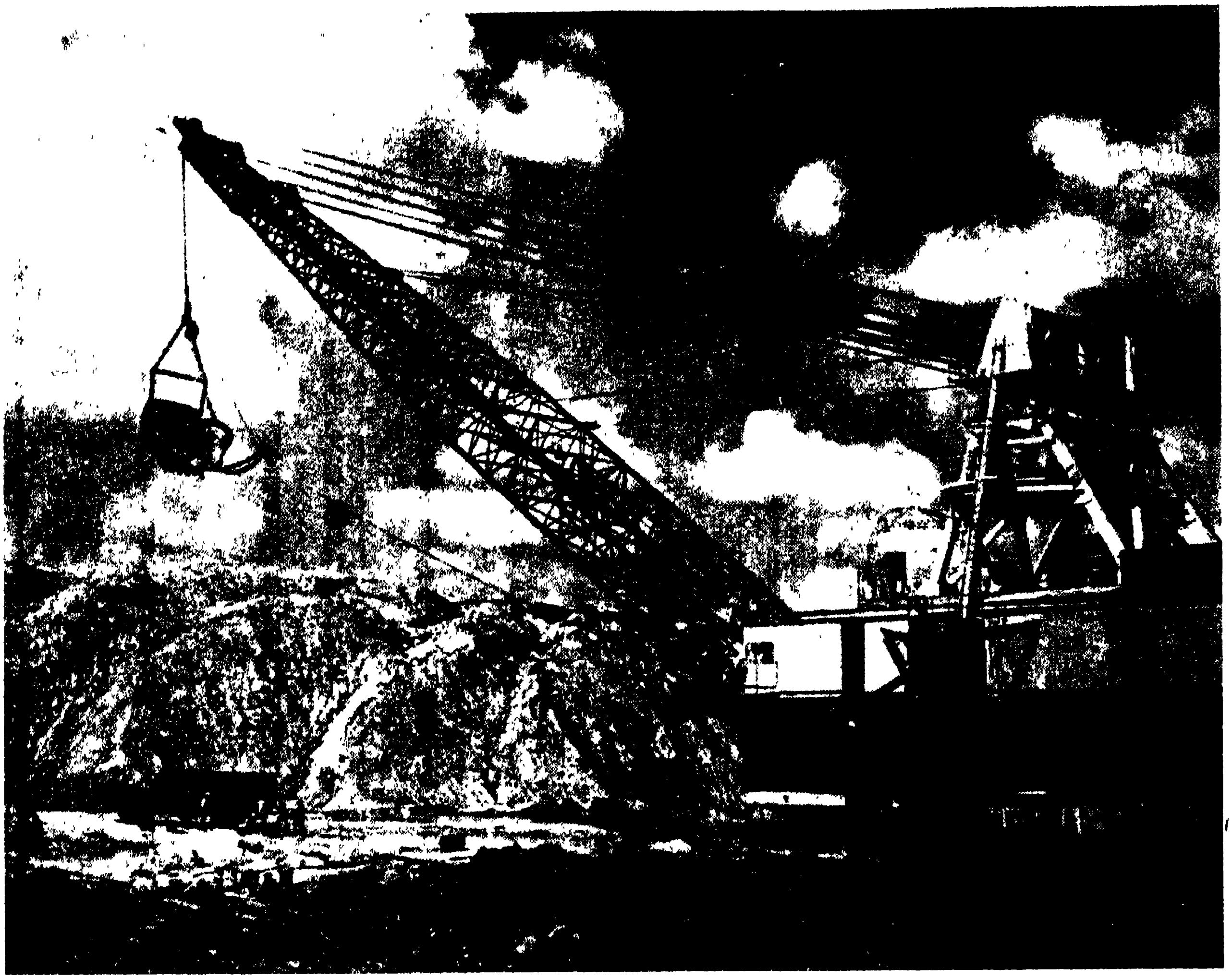
liquor obtained from the carbonisers is processed in the tar-products units to yield a number of valuable by-products such as tar, dephenolised oil, carbolic acid, ortho-cresol, meta-para cresol, xylenols and multivalent phenols. These chemicals are used in a wide range of chemical and plastic industries. The char fines that are obtained along with the briquettes are used mainly by cement factories and brick kilns. It is also used in the manufacture of calcium carbide and active carbon.

Taking note of the continuing power deficits in the Southern region, the Government of India have sanctioned in February 1978 the opening of a second mine of 4.7 million tonnes capacity linked to a thermal power station of 630 MW capacity. The work on these projects has been taken on hand. The second power station is stated to be put on bars progressively from early 1984

The company has formulated proposals for consideration of the Government for expansion of the capacity of the second thermal power station from 630 MW to 1470 MW and steping up lignite raisings in the second mine from 4.7 million tonnes to 10.5 million tonnes per year. The NLC has also sent up a proposal for establishing a 1500 tonne per day urea plant which would use the existing infrastructure via the lignite gasification route with an attendant increase in the capacity of the first mine from 6.5 million tonnes to 8.5 million tonnes per annum.

A giant spreader in operation at the Neyveli Lignite Mine





A Dragline in operation in an open-cast mine

Round up

Central Coalfields Limited

CENTRAL Coalfields Limited is the new name of the erstwhile National Coal Development Corporation which was formed as the first Public Sector Coal Company in October, 1956 with eleven collieries taken over from the Railways.

By 1960-61, the NCDC has about 20 mines and a production of 8.05 million tonnes. A target of 13.5 million tonnes was set for the year 1966-67. The anticipated demand, however, not having arisen to that extent, production had to be pegged at 9.56 million tonnes in 1966-67. With the installation of new power houses and other coal-based industries during the subsequent years, however, the demand picked up and accordingly production also went up, reaching 14.37 million in 1971-72.

Non-coking mines were nationalised in 1973. The NCDC became a subsidiary of Coal Mines Authority, later re-named as Coal India Limited. Coal production of the CCL during 1973-74 was 15.55 million tonnes.

In 1979-80, it went up to 24.15 million tonnes representing over 800 per cent increase from 1956-57 and 56 per cent increase since 1973-74.

In 1980 the company had to produce 26.35 million tonnes and production during the first eight months had been according to the plan inspite of nagging problems of inadequate power availability, difficulty of land acquisition etc. As compared to the corresponding period of previous year, the production during the eight months of 1980 was 15 per cent more.

The challenge of production of one million tonnes extra coal has been accepted and the CCL's dedicated team of 1,10,000 workers, staff and executives has been working as one man to meet the target fixed by the Government for 1980.

In the next 10 years, the production programme of the CCL (in million tonnes) is as follows :—

80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90
26.35	30.04	36.26	44.27	50.85	56.01	62.49	68.74	72.37	77.39

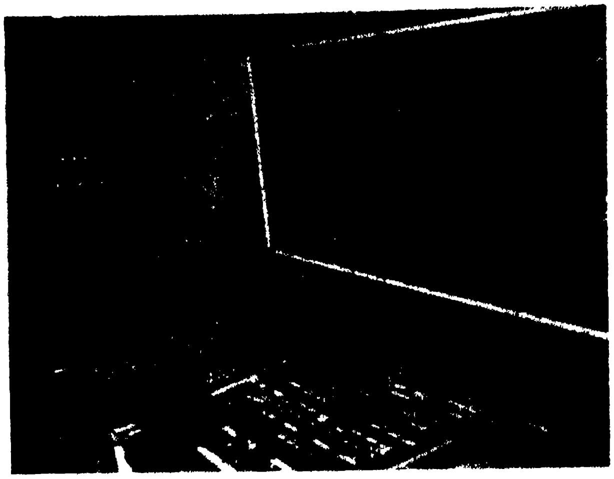
It aims at 193.7 per cent increase in the production during 1989-90 over that in 1980-81.

In the 23 years from 1956-57, the NCDC CCL made profits for 12 years and incurred losses for 11 years. The cumulative losses for the 23 years was Rs. 36.02 crores. In 1979-80, the CCL earned a massive profit of Rs. 36.06 crores and wiped out the entire cumulative losses. During the first eight months of 1980 the CCL has estimatedly earned a profit of around Rs. 12 crores inspite of escalation of prices of all the inputs—stores, spares, oil and lubricants, explosives and so on.

To overcome continuous power shortages, the company has made arrangements for generating sets and is also exploring the feasibility of having captive power stations. Orders for plant and equipment has been placed. Critical inputs have been identified and long-range strategy for procurement has been evolved. A number of training institues have been opened up to impart training to various kinds of technicians.

The company has been able to achieve the targets and is confident about the future bacause of team work, horizontally and vertically. The trade union leaders both inside and outside the organisation, belonging to diverse political and non-political groups, are a part of the team. The State Governments have always been helpful.

The case of Kathara Washery can be cited as an example of the new spirit among all concerned. This Washery which was considered sick from its inception, was producing around 2000 tonnes a day. But recently representatives of management and workers met and charted out plans for improvement as a result of which the washery now produces an average of 4000 tonnes a day which is 95 per cent of its capacity.



A Control panel in a coal washery.

A master plan has been drawn-up for the Singrauli coalfields (on the border of U.P. and M.P.) which is slated to produce 29.30 million tonnes in 1989-90 out of the total of 77.39 million tonnes of the CCL's target. Coal mines with annual production capacity of 10 million tonnes -the largest in the country—have been planned in this coalfield. Similar master plans are being worked out for the other coalfields to have integrated development of not only the mines but of all the infrastructural facilities including colonies, roads, railways communications, schools, hospitals, marketing centres, recreational facilities etc.

The production programme for the Central Coalfields Ltd is the highest amongst all the subsidiaries with a projected growth of 194 per cent in 1989-90 over the production targets of 1980-81. In the wake of the global energy crisis, the coal production targets—the mainstay of our energy scenario—have to be achieved if our nation has to forge ahead. It will be the endeavour of CCL not only to meet the target but to exceed it. □

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Functioning of Nationalised Banks Some Impressions and Suggestions:

S.L.N. Simha

THIS article is qualitative, containing the impressions of one who has studied the progress and problems of Indian banking as an academician rather than as a practical banker, for over three decades. The writer's age, if not wisdom and any profound knowledge of banking and monetary theory, and experience as a client of banks give him some authority to express views and suggestions. Statistics will be avoided as far as possible, for, in the study of the, banking system, statistics can be misleading, both overstating and understating the performance, which remark holds good of many other sectors of the Indian economy. Also, while the focus of this article is on nationalised banks, the remarks hold good for all Indian banks, generally speaking.

It is also futile to discuss as to whether nationalisation was necessary to achieve progress in the banking sector. Happily, one does not come across much argumentation about it these days, except for a brief while in 1980 when six more private sector banks were nationlised. It is now mainly a question as to whether the remaning private sector Indian banks should be nationalised too. I feel that the balance of advantage lies in nationalising them. Coexistence of Private Sector and Public Sector banking is good but when the Private Sector Portion is reduced to practically zero statistically, it is better we have de jure a wholly nationalised banking what is already so on a de-facto basis. The private sector banks cannot function with dynamism and innovation, when the Damocles sword of nationalisation is hanging over their heads.

Competition from Foreign Banks

This means that some competition in the banking field can only come (or mainly come) from foreign banks operating in India, not so much those which have been operating in India for a long time as the new ones that will be set up. It may be hoped that that Indian authorities will pursue a liberal policy in this regard, so that Indian banks may also have an opportunity to open branches abroad. This process is necessary in the broader interest of the Indian economy which must get integrated progressively with the international economy. This is necessary for progress, if not survival. This will also call for a substantial dismantling of exchange controls. Our fiscal and monetary policies must be such as to keep the rupee reasonally strong, without the artificial proof of exchange controls.

Pace of expansion of branches has broughts in its wake numerous organisational problems, contributing to a general lowering of efficiency.

We should not hope for much competition from among the Indian banks, especially the nationalised banks. In the last eleven years, since the nationalisation of the major segment of bankging, I have seen very little of what one might call constructive competition. There has been competition in deposit-stealing and misleading the public in regard to the interest rates offered on deposits of various maturities. Happily, the latter has been nearly (not wholly) given up, thanks to the lead of the State Bank of India which called, in an advertisement, the bluff of 'high' rates of interest offered by the other banks Actually what we look for is a large measure of standardisation of procedures and forms, with a view to increasing operational effeciency and thereby reducing costs. This has happened in a small way only.

Nationalisation and After

With this preamble, let us look at the functioning of banks, following nationalisation of the major segment of banking in July, 1969. As everybody knows, the progress in the matter of opening branches has been spectacular since nationalisation, the average annual rate of growth being something like 12-13 per cent. The focus was on rural branches, which have recorded over 20 per cent growth per annum on the average, in the last 11 years.

This very pace of expansion has brought in its wake numerous organisational problems, contributing to a general lowering of efficiency. The locations vary a great deal in quality but at least in the urban areas there is tremendous congestion in bank offices. In most foreign countries, it is a pleasure to be in the premises of a bank, but not so in India, generally speaking. There is so much over-crowding that as a crude saving goes, two persons have to come out if one has to go in. It is impossible for bank staff to work with concentration, even if the inclination is there.

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* Former Deputy Governor, Reserve Bank of India, and Former Chairman, Institute of Financial Management and Research, Madras.

There was also not much preparation by way of having adequate staff at supervisory levels for meeting the challenges of a mammoth expansion of branches. Brave efforts have been made to recruit staff and train them at all levels; the results are good as far as they go, but apparently they have not gone far enough. Having said this, I must add that as important as, if not more important than, training is motivation of the staff. Somehow, this does not seem to have happened. Apparently, contrary to expectations, nationalisation has not had much emotional appeal to the bank staff as an efficiency factor.

SBI's Dynamic Role

Among the nationalised banks, the State Bank has followed a dynamic recruitment policy of Probationary Officers through competitive examination and this probably explains, among other things, the generally high standard of efficiency observed in the functioning of the Bank. Recently, services boards have been set up on a regional basis for recruitment and promotions in banks and this should go a long way in raising the quality of entrants to banks and the supervisory staff.

If banks are to function as development agencies rather than moneylenders, they need a very much diversified staff-engineers, chartered and cost accountants, financial analysts, farm experts and psychologists. Happily, this has been recognised; only progress is slow. Also direct recruitment should take place at various higher levels, than that of a clerk/probationary officer. Not much new blood has been injected into the banking system.

One of the objects of nationalisation was mobilisation of deposits. In the urban and metropolitan areas, it is doubtful if much has been done to develop the banking habit, but it does seem that some results in this direction have been achieved in the rural areas: the rate of growth of rural deposits is substantially larger than the rate of growth of rural branches.

Benefits of Nationalisation

The benefits of nationalisation seem to be largely in the deployment of credit rather than deposit mobilisation. Several good things have happened, partly as a matter of policy and partly by way of adaptation of bank lending to the emerging pattern and needs of the economy. In other words, not all the credit for the changed pattern of bank lending need be given to the nationalisation measure.

There is now far better appraisal of credit requirements, both macro and micro, than in the pre-nationaisation days. Credit planning and management have made strides. Naturally there has been much experimentation and probably for too frequent policy changes in matter of detail. But the basic objectives have been to link credit flows to the needs of the economy in accordance with the broad sectoral pattern of our plans and expanded availability to what are called priority sectors, in particular agriculture and small-scale industrial units, as also weaker sections of the community. These objectives are unexceptionable in theory, but in practice there are difficulties in their implementation. It is a question of reconciling the banker's caution, the impatience of the politician and the platitudes of the ivory tower economist. Adaptations and modifications are also called for, in the absence of thorough knowledge of the economic forces and trends, national and international.

Contrary to expectations nationalisation has not had much emotional appeal to the bank staff as an efficiency factor.

I feel that the progress in the matter of achieving a more balanced and healthy sectoral allocation of credit has been very good, all things considered. Lending to priority sectors, which was about 15 per cent in 1969 is now more than double, about 32 per cent, taking all categories of commercial bank credit into account. If credit for public food procurement is excluded from the total priority sector, lending is higher, at a little under 40 per cent.

While the authorities would have liked the progress to be even better, the fact is that in making the present progress, banks have taken risks Overdues and defaults are on the increase. What the really weak sections need is grant rather than credit. Also the credit needs of other sectors of the economy have to be met in a reasonable way, especially of industrial units which supply directly or indirectly, inputs for the egricultural sector. After all, in a planned economy like ours, the distinction between priority and non-priority sectors should not be overdone.

Besides larger credit availability, the priority sectors also enjoy now concessional rates of interest on their borrowing. Naturally, the non-priority sectors have had to bear the burden of higher interest rates than would have been necessary. Of course, in this policy, there is very much the danger of excessive barrowing and diversion to non-priority sectors; it is not possible for banks to keep full vigilance in these matters. Undoubtedly this has happened, though how much, it is not known.

"Not So Happy Feature"

A not so happy feature of Indian banking, especially in the last 7-8 years is that it is over-regulated. There are far too many guide-lines, meetings, seminars, working groups and Committees. A lot of time of the senior executives of banks is taken up in arranging for the filling of forms and attending the conferences. The Credit Authorisation Scheme has also made vital contribution to needless paper work and consultations and administrative rigidity, whereas banking is a type of business where there must be a lot of discretion on the part of the lender. The Reserve Bank of India must not concern itself unduly with credit extension to individual units. Its role is to lay down broad guidelines. Occasional check is all right, but prior approved of the RBI to credit extension above a limit of Rs. 1-2 crores is unnecessary and diminishes the sense of responsibility of individual banks, if not their stature

It is not as though the Reserve Bank has adequate expertise for doing an efficient job of screeing the accounts of individual business units. The Reserve Bank does not have banking experts in its top echelons, with the result that a lot of what it dictates is either ineffective or unworkable. Committee after Committee has to be set up to modify things, whereas a good team in the Reserve Bank can accomplish much, with minimum effort to itself and the banks. It is time the Reserve Bank gave up the British tradition of appointing a Committee to postpone action or keep things in a state of confusion. The bankers themselves, it would appear, do not speak with courage about the practical difficulties of implementing many proposals of banking expansion, diversification and credit deployment.

A reason for the confused and timid approach to banking matters on the part of the top executives is the fact that the appointments are made by Government. There is much uncertainty and apprehension in this regard on account of the vagaries of policy. It is time that a fairly clear-cut policy was formulated and announced and, equally important, implemented. In this connection, it is helpful to set up a high-powered Banking Services Commission, comprising say 5 members, for making appointments to the positions of Chairman, Executive Director and General Manager, of the nationalised banks. A representative each of the Finance Ministry and the RBI should be ex-officio members, in addition to the five regular members. Some such arrangements should be made to reduce the political element in these appointments. Today, senior bank staff talk only of appointments and promotions rather than banking practices and innovations.

Diversification

All over the world, commercial banks are diversifying their operations and are entering fields which were considered unsuitable for banks. Sometimes subsidiaries are set up by way of diversification. Indian banks have now more or less completed what one might call the first phase of their diversification, namely lending to the various sectors of the economy. Now the stage is set for their moving to the next stage of their becoming developmental agencies. In particular, their advisory role must be enlarged, especially for the benefit of small and new entrepreneurs. Without formally entering the merchant banking field, banks can do much to help clients on project preparation and, more important, financial estimates and the financing pattern. Working capital management is an area where the banks are eminently suited to help their constituents. This will be natural sequence to the increasing participation of commercial banks in medium term lending; which is of the order of 20 per cent of their aggregate lending.

Investment counselling is another fertile field for banks, to render services as well as augment their earnings. Investment counselling is required not merely when a person comes by lump sums of money on retirement, but on a continuing basis, including on matters like life insurance.

Commercial banks can also do much to raise standards of company management. They are in continuous possession of information on the performance of companies and they can alert, guide and discipline company management.

It would be good to entrust to commercial banks the work of issuing and transferring shares of companies. This will provide a check against the possibility of malpractices and generally enhance the liquidity of shares.

Measuring Performance

One of the ways of measuring the performance of a business unit even if a rough one, is the question of profit in relation to the resources employed. In the case of financial institutions, the profit item is even a more rough measure, since borrowed funds predominate in relation to owned funds-share capital and reserves. Also, it is nearly impossible to say from published figures whether the provision for bad debts is adequate or not and how the investments are valued. Finally, in the case of the nationalised banks, profit are restricted by official policies with regard to deposit and lending rates—the average spread between the two is probably narrower than the market situation warrants.

If banks are to function as development agencies rather than money lenders, they need a very much diversified staff.

Having regard to all these aspects one cannot say that the profitability is poor. Thus, in 1978, the latest year for which data are available, the 22 nationalised banks had a pre-tax (after bonus, gratuity and 'other' provisions) profit of Rs. 172 crores, in relation to share capital plus reserves of Rs. 312 crores. Taxation accounted for Rs. 139 crores. Beyond the above general remark, it is not possible to comment on the profit situation of banks.

Restructuring Indian Banking

We may conclude the paper with a brief consideration of the lines on which Indian banking can be restructured and banking regulation may be improved. The time is more than ripe for making the seven subsidiaries wholly independent of the State Bank of India. Secondly, regional bias must be consciously observed, as regards banks other than the State Bank of India. This should be observed mercilessly in the case of small and medium banks. This makes the promotional and regulatory role of commercial banks more efficient than now.

Although the State Bank of India's vast size has not come in the way of its being comparatively an efficient instiution, thus far, it would seem desirable to go slow in the matter of its expansion from now on. The small and medium banks should be invited to expand more rapidly than hitherto; the same should be the policy with regard to regional rural banks.

On the other hand, I would like the responsibility of the State Bank to be widened, in ways other than branch expansion. The responsibility for standardising and streaming forms and procedures and for supplying senior staff to other banks could well be placed on the SBI. It is a matter of deep regret that even after 30 years of the operation of statutory banking regulation by the Reserve Bank, eleven years of the take-over of major scheduled banks and the presence of august bodies like the Indian Banks' Association, the Indian Institute of Bankers, the Bankers Training College and the National Institute of Bank Management, forms, documents and procedures vary a great deal from bank to bank. Something should be done to correct the situation urgently. Standardisation is the key to progress, efficiency and convenience of the public. I feel that the State Bank must be made the overlord in this matter.

Efficient Functioning of RBI

The Reserve Bank of India ought to function far more efficiently than so far in the matter of banking development and regulation. It must curtail its routine inspection of banks a great deal and concentrate on raising the standards of efficiency and usefulness of banks. It must have in its organisation a large corps of presons very knowledgeable about banking. It can do a lot of quiet but solid work in taking Indian banking to to new heights, without appointing every day a committee or group to study the many specific issues that come up from time to time. In the Indian banking system, there is enough scope for the Reserve Bank to consult banks without going through the ritual of a committee. There would also appear to be considerable scope for decentralising the RBI's operations in regard to banking development and regulation.

For toning up the efficiency of banks, it will be a good thing if new blood is introduced at various levels, the selection being made from industry as well as the administrative, economic and educational services. It is not at all necessary for a 'Professional' banker to be Chairman or Executive Director of a bank. A dynamic managing or finance director of a company may do very well as the head or a senior executive of a bank. I feel that the routine policy of bankers only has robbed the system of the availability of a lot of talent in the country.

I feel it is desirable to revive the National Credit Council, with some changes in its scope and composition. We should have a national forum for discussing monetary and credit problems.

Summing up

Summing up, we have in the country a very good banking base and with a proper combination of guidance and autonomy, our banks can develop into dynamic agencies, facilitating rapid economic development on an enduring basis, also observing the socialistic goals in the matter of deployment of credit. Nationalisation has definitely been productive of much good. More could have been achieved but for too many shifts in policy and procedure, undoubtedly dictated by good motives, but unfortunately slowing down the progress.

The authorities did not also keep in mind the motto 'hasten slowly', till recently. There is now recognition that number of banking offices and bank accounts alone do not matter. Quality is important. The Slowing down of the pace of expansion of banking offices is a welcome development. Consolidation and growth have to go hand in hand ☐

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Development Banking at the Cross-Roads

R. K. Roy*

THE precise objectives of development banking in India need to be clearly set out in assessing the direction that should be imparted to the numerous development banks which disburse a vast sum of public funds to industry.

The network of development banks in India is extensive. At the all-India level are the Industrial Finance Corporation of India (IFCI) set up immediately after Independence, the Industrial Development Bank of India (IDBI), the largest, the Industrial Credit and Investment Corporation of India (ICICI), the only one in the private sector, and Industrial Reconstruction Corporation of India (IRCI), the smallest which is entrusted with the task of reviving sick industrial units.

Since their inception, IDBI, IFCI, ICICI and IRCI have lent and invested over Rs. 4000 crore in industrial ventures in the private and joint sectors which are the main areas of their operation. They have, of late, lent and invested over 650 crore rupees annually. Currently, their annual sanctions, tend to exceed 1000 crore of rupees.

A part of the project assistance of the all-India institutions is in the form of investment in shares and debentures of the assisted industrial concerns The Life Insurance Corporation of India (LIC) and Unit Trust of India (UTI), are the other all-India institutions which assist and invest in shares and debentures of new industrial ventures. The assistance to industry, since the inception of LIC and UTI, adds up to over Rs. 480 crore. The annual assistance sanctioned by them to industry exceeds 100 crore rupees.

Industrial project finance is also made available by the State financial corporations and the State industrial development corporations. Nearly all the States have these twin agencies. These State agencies have lent and invested (since their inception) over 1,100 crore of rupees. Currently annual sanctions are of the order of 300 crores.

The annual disbursal of assistance to industry by the institutions currently adds upto to over 100 crore rupees. It thus seems that development banking in India has come of age. The development banks at the all-India and state levels will pump resources at a rate which is slated to rapidly escalate each successive year.

The question is whether, ignoring for the moment the issue of rising project costs, a mere jump in the quantum of assistance by the Development Banks will be considered a satisfactory development.

Objectives not Served

The objective of development banking, simply stated, is to promote rapid industrial development. This objective has at least three important facets. First, to achieve development through a rapid spread of entrepreneurship. Secondly, and this follows from the first, to ensure a rapid spread of industrialisation by region. And third, which is linked with the preceding two, the promotion of medium, small-medium and small viable industrial projects.

Development banks play safe by lending to large industry.

On spread of entrepreneurship, the development banks in India have little to show. True, a large number and a variety of small and medium industrial units have spawned during the last two decades. But the basic thrust of investment in industry in the private sector has come, by and large, from the large houses, that is by those covered by the MRTP Act.

That in recent years the Government's preoccupation has been with relaxing licensing and other regulations with a view to securing quick increase in industrial output is indicative of the nature of entrepreneurship that is considered to have resilience in the Indian economy. The large official approach speaks volumes for the importance the large houses, that is, the traditional metropolitan-based etrepreneurs, have assumed under the aegis of development banking in India.

It would seem that the development banks, including the giant all-India institutions, have preferred soft-options. Their preference for large houses has not only stemmed from the pattern of industrial licensing. Their performance has been influenced by at least two other considerations.

One, the large houses have the command over and access to technical and managerial resources. However, is it not the function of development banks to provide support precisely in these two areas to the entrepreneurs who fall outside the group of traditional large houses? The kind of selection the development banks did was, surely, loaded against diffusion of entrepreneurship.

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*Resident Editor, Economic Times

Two, the development banks appear to have taken a cautious view on the financial resources capability of non-traditional, non-large entrepreneurs. The traditional large houses have their vast industrial investments to rely upon for resources generation. Especially with respect to expansion programme, their average costs tend to be lower than the costs that have to be incurred by new units of new entrepreneurs. The large houses, by and large, have been favoured by the development banks. It cannot be said that the caution was entirely justified, judging from the fact that the phenomenon of industrial sickness' goes across the board by size-class of ownership.

In other words, the development banks have not been venturesome. Nor have they kept the principal objectives of development banking in view.

It is hardly surprising, therefore, that the development banks have failed to foster the regional spread of industrialisation. Development banking favoured, broadly speaking, the status quo in the pattern of entrepreneurship and followed the ventures of the traditional entrepreneurial class.

Industry has remained confined to the traditional metropolitan belts and their hinterland. Barring some large projects at selected centres in the country, Western India, in particular, has been the major field of operation of the development banks.

The Missing Element

Further more, within this limited framework of industry promotion, it can hardly be said that the development banks have chosen projects which are internationally competitive. How many export industries have the development banks promoted ?

The quantum of annual disbursement of funds to industry by the development banks is slated to rise rapidly. The principal reason for this is the rapid escalation of project costs that continues unabated. If the old pattern of capital and energy-intensive projects continues to be fostered, the impact of burgeoning assistance on industry promotion will continue to be limited.

Can the escalating costs be covered through proper market pricing as is generally assumed ? Does the domestic market pose no limitations ? Will the country have to continue to subsidise these projects directly and indirectly ?

Development banks are not aware of the growth trends.

The implications of costs and pricing need to be fully realised. The principal one, in the present context, is their impact on the ability of the projects to finance their borrowings. To date, resources garnered through repayment of past loans and interest earnings on them are not a sizeable proportion of the total lendable resources of the development banks. This proportion is likely to decline and this, in turn, will sooner than later retard the growth of resources for industry promotion.

It follows, therefore, that the development banks need to review their strategy of industry promotion. They must be able to sense out growth impulses in different parts of the country and in new classes of the population.

Consider the fact of the recent rise in the rate of savings as a percentage of the national income. The rise is indicative of the fact that substantial incomes are accruing to certain groups of the population and these income earners are saving a sizable portion of their incremental income. It would not be unreasonable to presume that these savers are willing to invest. In any case, beyond a point these savings cannot be funnelled into the financial assets made available by the capital markets.

Because of the continuing preoccupation with traditional groups for industry promotion and with packages of technology and management practices already available the development banks do not seem to be able to sense out the growth impulses in the economy.

Development banks are innovators. Innovation is precisely the missing element in the kind of development banking that has been fostered so far.

(Courtesy : A.I.R.)

Save Energy—Switch Over to Bicycles

INCREASING environmental consciousness, rising fuel prices and a general health fad have resulted in making the bicycle a fast-selling item again in the past few years in the Federal Republic of Germany.

Three out of five people in the Federal Republic of Germany already own bicycle and the two-wheelers are continuing to sell in great numbers. In the first three months of this year some 1.13 million sports, racing and touring bicycles were sold, around 35 per cent more than in the first quarter of 1979. In view of these sales figures, the German Bicycle and Motor Industry Association figures that sales for the entire year will total more than 4 million bicycles.

The old image of the bicycle as the poor man's vehicle has disappeared and, quite the other way around, many models produced by the bicycle industry are now sold as status symbols.

There are still many people in the Federal Republic of Germany who would be willing to switch over from their car to a bicycle if this were facilitated for them through an appropriate public roads policy aimed at leading away from road planning that is oriented purely towards the needs of the automobile, the new road policy should aim at the expansion of the bicycle path network.

(German News)

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Management Boards vis-a-vis Committee on Public Undertakings

Dr. C. R. Ananda Rao*

THE Public Enterprises should be accountable to Parliament, at the same time without affecting their autonomy and subjecting them to the public criticism on the floor of the Parliament. The effective method to ensure accountability of this nature would be that of a review by a Committee of the Parliament. The Committee on Public Undertakings (CPU) came into being in May 1964. The functions of the Committee are to examine the efficiency of the public undertakings and how far the undertakings are managed in accordance with sound business principles and 'prudent commercial practices'. Hence the role of CPU ensures public accountability. Further the CPU ensures autonomy of public undertakings as they do not examine and investigate matters of day-to-day administration.

Management

In this paper, an analysis of the recommendations of CPU on Management Boards of the Public Enterprises is attempted. The main thrust of recommendations of the Committee on Public Undertakings on Management Boards of Public Sector Undertakings concerns the empanelment of top post frequent changes in the Board, Secretary of the Administrative Ministry as Chairman, Chairman-cum-Managing Director, Structure of the Board, Functional Directors and non-officials on the Board. The Committee suggested that some broad principles should be laid down to determine the size and composition of the Boards of Directors of the Public Undertakings for the guidance of all the Ministries and consistent with the needs of representing the necessary talent, experience and interests adequate for effective functioning of the enterprises. In reply the Government stated that as regards the broad principles governing the composition of the Boards, these have already been laid down based on the recommendation of the Krishna Menon Committee and the recommendations of the Administrative Reforms Commission accepted by the Government.

The Committee in its recommendations pointed out that in spite of the acceptance of the recommendations of Administrative Reforms Commission they have not been implemented by the Government. But ultimately the recommendations had their impact and proved useful as the Government has come out with a policy for the management of Public Enterprises.

Empanelment of top posts

A Committee of Secretaries headed by the Cabinet Secretary was constituted in the year 1965 to consider various aspects relating to the manning of top posts in the public sector with special reference to remuneration, terms of service and relationship to the public services. Pursuant to its recommendations, panels for appointment to these top posts are maintained by the Bureau of Public Enterprises under the supervision of the Cabinet Secretary. The selections for appointment to these top posts are normally to be made by Government out of a panel of names drawn up by the Empanelment Selection Board consisting of Secretaries to the Government of India and Chief Executives of Public Enterprises. The B.P.E. services the Empanelment selection Board and ensures that the administrative Ministries are provided with panels of names finalised by the Board from time to time.

The delay in filling up top posts in Public Undertakings has been attributed to the reason that the Empanelment Selection Board consisted solely of Secretaries to Government and had no representative of Public Sector Enterprises on it. In 1970 the Empanelment Selection Board was reconstituted and since then it consisted of an equal number of representatives of Public Enterprises and Secretaries of the Ministries. Thus, the Committee on Public Undertakings viewed that this kind of composition would result in deeper understanding and greater confidence between Government and public sector enterprises. Instead of procedure of empanelment of top posts by Empanelment Selection Board, a high level selection Board known as Public Enterprises Selection Board was set up in 1974, with eminent persons, including Chief Executives from the public sector and private sector to recommend suitable names for specific vacancies at the top level for holding the post.

The Public Enterprises Selection Board was set up on the basis of recommendations of the Action Committee on Public Enterprises which was constituted by the Bureau of Public Enterprises in December

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1971. Hence, it can be inferred that the Committee on Public Undertakings was not directly responsible for the setting up of Public Enterprises Selection Board.

The frequent change of incumbents of posts of Chairman and Managing Director is not desirable in as much as it results in a waste of experience and of intimate knowledge acquired by the individual. To ensure continuity of management, the Government should see to it that the Chairmen and Managing Directors of the Public Undertakings are not changed frequently.

The Committee recommended that the persons for appointment on the Board of Directors should be selected carefully and appointed for a minimum term of 5 years so as to enable them to fully implement the plans and programmes entrusted to them and to contribute to the efficient and economic working of the enterprise concerned. The tenure of Directors on the Board should be linked up with the performance of the individuals concerned so that it should always be possible to remove unsuccessful or inefficient persons before the expiry of their term. The reply of the Government has been that of 'noted' 'agreed' and 'the Government will take into account the recommendation of Committee on Public Undertakings'. In this context the impact of the Committee's recommendations seem to be ineffective as it can be seen from the replies of the Government. Perhaps the Government was not able to curb the tendency of frequent changes for political reasons.

Ministry's Secretary as Chairman

The appointment of the Secretary of the administrative Ministry on the Board of Directors of Public Undertakings would create some problems and anomalies. Firstly, his presence in a meeting would hamper a free and frank discussion of the issue involved. Secondly, the advantages of a second screening of the proposals of the undertaking at the Ministry level would be lost, because the officers in the Ministry would start with the opinion that it has the approval of the Secretary in his capacity as a Member of the Board of Directors.

The Committee recommended that the post of Chairman of the Board of Directors should be filled in by some suitable persons other than the head of the administrative ministry. The Committee suggested that Government should issue suitable instructions to see that not only Secretary but also Additional Secretaries should not be appointed on the Boards of Public Undertakings. The reply to this recommendation by the Government has been that of 'noted', 'accepted' and 'brought to the notice of Government for necessary action'. In the case of the Public Undertakings pointed out by Committee, the appointment of Secretary of the administrative Ministry as Chairman has been discontinued.

The Committee commented upon the appointment of Sri N N. Wanchoo, the then Secretary of the Ministry of Industries and Steel as the Chairman of Bokaro Steel Ltd. (B S L.) and his continuance as Chairman even after his transfer as Secretary to the Ministry of Industrial Development and Company Affairs. In reply, the Ministry has sought to justify the appointment of the Secretary of the Ministry on the ground that it was considered advantageous to have the Secretary as Chairman of the new company in its initial stages. It was also stated that even after the transfer of Shri Wanchoo to the Ministry of Industrial Development and Company Affairs, considering his past association with the project, it was not considered advisable to relieve him of his appointment as Chairman of B.S.L., particularly when the project was in its crucial stage of construction. The Committee are not satisfied with the replies furnished by the Ministry and reiterated their recommendation and desired that the recommendation of Administrative Reforms Commission which has been accepted by Government in respect of industrial undertakings, should be strictly followed .

The committee recommended that the persons for appointment on the Board of Directors should be selected carefully and appointed for a minimum term of five years so as to enable them to implement the plans and programmes entrusted to them.

The Committee which reviewed the working of S.A.I.L. reiterated the earlier recommendations of the Committee that "no Officer of Ministry should be made Chairman of a Public Undertaking nor the Secretary of the Ministry be included in its Board of Management". The Committee, however, added that "in view of the improvement noticed after formation of S.A.I.L. as a holding company, which is a novel experiment, the Committee would like to watch the functioning of this arrangement for some more time before they could give their observations in this regard".

The impact of the Committee's recommendations seems to be effective as the appointment of officers of administrative Ministry as Chairmen of the Public Undertakings has been discontinued. But again this issue was reopened in the case of Steel Authority of India Ltd. The Committee reiterated its earlier recommendation but reconciled with the situation in the case of S.A.I.L. and would like to watch the functioning as it was a new organisational set up.

Chairman-cum-Managing Director

The Committee suggested the desirability of appointing full-time Chairman as 'the Chief Executive' in the case of Oil and Natural Gas Commission as it will enable the Chairman to exercise better day to day control and supervision and lead to expenditious implementation of the policies and programmes of the undertaking. When the Chairman has no executive functions and is simply required to preside over the meetings of the Board, that would make the organisation top heavy without any attendant advantages. Hence the Committee recommended the desirability of combining the posts of Chairman and Managing Director as recommended by the Estimates Committee in their report on 'Personnel Policies of Public Undertakings'.

In their report on 'Public Sector Undertakings', the Administrative Reforms Commission too had recommended that the Board of Management of Public Sector enterprise should have a full-time Chairman/Managing Director. The Government considered the recommendation and decided that as a rule there should be a full time Chairman-cum-Managing Director and in exceptional cases where the Chairman might be only a part-time one, there should be a full-time Managing Director. A full-time Chairman may like to justify his existance by taking over executive functions and hence may come in clash with the Managing Director. A part-time Chairman has no specific functions or responsibilities besides presiding over the meetings of the Board and the executive responsibility is vested in the Managing Director. Hence the Committee recommended that Government should explore the possibility and study the feasibility of combining the posts of Chairman and Managing Director.

In reply to the Committee's recommendation of combining the posts of Chairman and Managing Director, the Government's reply has been that of 'noted', 'under consideration', 'action being taken', and 'accepted'. In the case of the report on Bharat Earth Movers Limited (B.E.M L.) the Government in their reply stated that the B.E.M.L. was still in a developmental stage, the presence of a senior experienced person as part time Chairman of the Board who can provide superior guidance to the affairs of the Company was considered a distinct advantage. The Committee are unable to agree with the views of the Government that at the development stage it was considered to be advantageous to have a part-time Chairman. Quite apart from the above the Committee felt that as it had already gone into production in 1968-69, the Government should consider the desirability of combining the posts of Chairman and Managing Director in the B.E.M.L. In the case of the report of the Committee on Modern Bakeries (India) Ltd. also the reply of the Government has been that existing pattern of part-time Chairman and Managing Director may continue particularly in this developmental stage. As regards the Committee's report on Hindustan Photo Films Manufacturing Company Ltd., the reply has been that if Government have decided in consultation with the Public Enterprises Selection Board to continue the present arrangement of a part-time Chairman and a full-time Managing Director for the Undertaking it was because of the existing Chairman's enthusiasm which resulted in capacity utilisation of 80 per cent of the rated capacity and increase in production.

Structure of the Board

According to the existing policy decision of the Government, the typical structure of the Board (i) for large multi-unit enterprises and large trading organisations could be a full-time Chairman-cum-Managing Director, assisted by at least two functional Directors, one of whom should be incharge of finance, and part-time Directors, and (ii) for the smaller enterprises it could be a Chairman-cum-Managing Director with one and possibly even two senior officers of the undertaking itself as functional Directors together with some part-time Directors. There should be no bar to the appointment of part-time Chairman, if in a particular case this course appeared desirable, but in such a case, a suitable whole-time Managing Director should invariably be appointed.

To conclude, the policy seems to be accepted but the existing position in certain undertakings is sought to be justified as exceptional cases. The impact of the Committee's recommendation could be seen in the sense that the Public Undertakings, pointed out by the Committee, came out with explanations justifying their position in this regard.

Functional Directors

The Board should include a team of functional Directors which may be jointly responsible for the proper execution of the policies of the undertakings. Then there should be an element of heirarchy in this functional team included in the Board of Directors so that the Government does not get at the loose end whenever the Chief Executive of the project (Managing Director and/or Chairman) retires or resigns. The Committee in its report on Hindustan Steel Ltd. (H.S.L.) considered that the functional Board will be best suited to H.S.L. The difficulty in adopting such a Board immediately is paucity of men with adequate qualifications and experience of the industry to occupy the posts of Directors. Hence the Committee opined that it would be useful to appoint one or two full-time functional Directors and diversion of competent persons from the operations of the undertaking to the posts of functional Directors. The Government's reply for this recommendation has been that of 'noted'.

The part-time chairman has no specific functions or responsibilities besides presiding over the meetings of of the Board and the executive responsibility is vested in the Managing Director. Hence the committee recommended ....for combining the posts of chairman and Managing Director.

It would be advantageous to have a full-time Finance Director incharge of budget and accounts department and another full-time technical director to look after technical matters. These Directors would not only be a party to, and responsible for all the decisions of the Board with regard to the management and operation of the enterprise, but would readily identify themselves with the objective of the enterprise. Hence the Committee observed that such full-time Directors would also gain the necessary training and experience for ultimately taking over as Managing Directors. Hence the Committee further stressed that there should be more full-time functional technical Directors on the Board so that various aspects of the working of the Corporation are looked after adequately by the Board. The reply of the government has been that of 'noted' and 'accepted' for the above observation made by the Committee. This is because the Public Undertakings pointed out by the Committee either already have the functional Directors on their Board or have proposal for increase in the number of such Directors. In this regard, the Committee seem to be anxious about the association of functional Directors on the Boards of Public Undertakings without adequately looking into the existing situation in this respect.

Non-officials on the Board

Persons on the Board of Directors should mainly be those who have experience of industry or special knowledge of commercial, financial and administrative matters or of labour management. The Committee suggested that it will be useful to have fairly good proportion of the members of the Board from among non-officials. The Committee repeated its suggestion that the Board of Directors be strengthened by inclusion of knowledgeable non officials of standing to the extent of 50 per cent.

It is desirable to associate a few prominent non-officials who have the knowledge of the problem of the undertakings on the Board of directors. In this context it is of relevance to mention the Committee's recommendation to the Government that it should endeavour to appoint persons with knowledge and experience of hotel industry in the case of Ashok Hotels Ltd, with knowledge and experience of insurance in the case of Life Insurance Corporation and with knowledge of the problem of shipping industry in the case of Shipping Corporation of India Ltd.

In the case of National Building Construction Corporation Ltd and National Seeds Corporation Ltd. the Committee recommended the association of the research organisations on the Board. The Committee in its report on Heavy Electricals (India) Ltd. and Rural Electrification Corporation Ltd. recommended that representatives of Electricity Boards should be nominated on the Boards. The reply of the Government for these recommendations have been 'noted', 'under consideration of the Government' and 'accepted'.

The Committee reiterated their recommendation that participation of workers and their representatives should be at all levels beginning from the top level to the Board of Directors "with a view to promote Industrial harmony and maximising production".

The Committee attached importance to this recommendation and pointed out that mere appointment of workers' representatives on the Board of Management without "workers' participation" at all levels will have only a symbolic value.

So far as the appointment of workers on the Boards of Management of Public Undertakings is concerned, the Government have decided to try the scheme on an experimental basis in a limited number of Undertakings. As regards the workers' participation in management at other levels, the Joint Management Councils envisage labour management cooperation through consultations and mutual discussion at a joint Council consisting of equal number of representatives of the management and labour. This scheme is applicable to both private and public sector undertakings.

The Committee on Public Undertakings seem to be very persistent in this regard because the Committee noted that the appointment of workers' representatives even on the Board of Management has not been made in all the Public Sector Undertakings. Further, the voluntary scheme of Joint Management Councils has also not been introduced in most of the Public Sector Undertakings.

Regarding Management Boards, the Committee suggested that some broad principles should be laid down to determine the size and composition of the Boards of public undertakings. The Committee pointed out that inspite of the acceptance of the recommendations of Administrative Reforms Commission in this regard, they have not been implemented. The recommendations of the Committee in this area are, a minimum tenure of five years for the persons who have been selected carefully on the Board, discontinuance of the Secretary of the Administrative Ministry on the Board, feasibility of combining the posts of Chairman and Managing Directors, a team of functional Directors on the Board, association of non-officials who have the knowledge of the problems of the undertakings on the Board and participation of workers on the Board. The replies to these recommendations by the Government have been 'noted' or 'accepted'. These were the cases of non-implementations of the Government's policy which emerged out due to the recommendations of Krishna Menon Committee, or Administrative Reforms Commission or both. In this context, it may be pointed out that recommendations of the Committee on Public Undertaking are in the nature of reiteration and persistence in the implementation of the recommendations by the Government, as they are accepted by

A Boon to Indian Industry

ONE OF the major benefits of the development of atomic energy in India is the application of radioisotopes in the industry. The areas of industial application cover isotope radiography, nucleonic gauging, radiotracer technique and radiation processing Isotope radiography for the non-destructive testing of castings, welds, forging and assemblies is one of the most widespread applications of radioisotopes. Unlike X-ray machines, isotope radiography units are cheaper, need little maintenance, are mobile, and do not require electric power. Nearly 700 radiography cameras are now being used in refineries, fertiliser plants, thermal and nuclear power stations, steel and electrical industries and defence establishments.

The nucleonic gauges, consisting of a small isotopic radiation source and a nuclear detector ensure non-contact measurement and control of levels, densities and thickness of industrial products.

The use of radiotracer in industry is yet another important application of considerable economic significance. Radiotracer techniques are used for locating leaks and obstructions in buried pipelines and in industrial components; determining efficiency of hydraulic turbines and tracer logging of oil wells.

In the field of radiation processing, the availability of high intensity gamma sources has stimulated the development and technology of industrial tradition processes. Areas of special interest are sterilization of medical products, radiation hygienisation of sewage sludge and production of polymer composites for industrial applications. □

Public Sector is Building up its own Cadre

Dr. C. S. Venkata Ratnam[*] & K. Ramu Naidu[**]

THE Government has delegated the powers of recruitment, training and promotions in respect of bulk of managerial posts in public enterprises, but it has retained the prerogative of appointment of the Chairmen, both part-time and full-time, and the members of the Board of Directors including the Managing Director. In order to evolve a sound managerial personnel policy for the public enterprises and in particular to advise the Government on appointments within its prerogative and also to contribute to management development, the Government of India has constituted a Public Enterprise Selection Board (PESB) with the following membership.

1. Chairman : Usually a Member of the Planning Commission.
2. Secretary of the concerned Ministry of Government of India.
3. Two Chief Executives, of which at least one is generally from public sector (at present both are from public sector).
4. Director-General, Bureau of Public Enterprises who shall also be the Secretary of the PESB.

It is open to the Board to co-opt the services of experts in industry to which the vacancy is related. In the case of holding companies, the Chairman is co-opted as a member of the Board for selection of Chairman of the subsidiary companies. The Bureau of Public Enterprises functions as the Secretariat of the PESB. The Board is responsible for selecting part-time and full-time Chairman and Managing Directors for all the Central Government Public enterprises, other than those in the fields of insurance and banking. In the case of a new appointment, the Board recommends to the Minister in-charge of the public enterprise concerned a panel of two or three names for consideration. The appointment is made with the approval of the Appointments Committee of the Cabinet. It is important to note that all the five members of the PESB, including its Chairman and Secretary, are part-time members. The Secretary of the PESB is also responsible for appointments below board level as a member of the selection committee. There are about one lakh posts in managerial cadres in the public enterprises owned or managed by the Central Government.

The number of recommendations made by the PESB for appointments at the level of Chief Executives and functional Directors from 1st September 1974, to 31st March 1979, varied from 28 (1976-77) to 110 (1978-79) The selection policy of the PESB as stipulated in the RPE's guidelines envisages that unless markedly better candidates are available from outside, vacancies will be filled by promotions from within a public enterprise. If internal candidates are not available, preference is given to those working in other public enterprises so as to give career opportunities to those whose promotion opportunities are blocked in their own enterprises. If suitable candidates are not available within the public sector, selections should be made from other sources like Government and Private Sector.

Chairman

Fewer public enterprises seem to have provided for separate Chairmen, full-time or part-time, than is generally believed. And, the trend in recent years has been to have the same individual hold the post of Chairman and Managing Director. As on Jan 1, 1980, out of 170 public enterprises, only 55 had separate chairmen. Of the 55, 11 were full-time and 44 part-time. While all the posts of full-time chairmen were filled in 10 out of 44 (22 per cent) public enterprises they were kept vacant in enterprises in which there is provision for part time chairman.

Chief Executives

In the 170 public enterprises studied, there were 163 posts of chief executives comprising 98 Chairman-cum-Managing Director's posts and 65 Managing Director's posts. The reasons for the difference between the number of enterprises and number of posts is that some enterprises do not have either CMDs or MDs. Such enterprises are usually headed by General Managers.

Five out of 98 CMD's posts and 14 out of 65 MD's posts were vacant on 1-1-1980. In all, 19 out of 163 posts of CMD/MD were vacant (11 per cent). Considering the fact that 14 out of 19 vacancies were for the post of MD, it can be inferred that barring a few exceptions, in almost all public enterprises either the post of Chairman or that of the MD was filled. Hence, it can be said that not many public enterprises were really 'top less'. Thus the available information indicates that the general impression created among the public that a large number of public enterprises are topless is, to say the least, incorrect and misleading.

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Salary Scales

A Committee of Secretaries headed by the Cabinet Secretary in 1965 considered the question relating to manning of top posts in public sector with special reference to remuneration, terms of service and relationship to public services. Under the recommendations of the Committee, as amended in 1974, the public enterprises were classified, on the basis of their importance to the economy and the complexity of their problems, into four schedules and the following salary scales were fixed for the Chief Executives in each :

1. For Schedule A	Rs 3,500-125-4,000
2 For Schedule B	Rs. 3,000-125-3,500
3 For Schedule C	Rs. 2,500-100-3,000
4 For Schedule D	Rs. 2,000-100-2,500 (now revised as Rs. 2,250-100-2,750)

Of the 150 public enterprises for which data were available on scales of pay, 9 Chief Executives belong to Schedule A, 52 to Schedule B, 72 to Schedule C and 17 to Schedule D. Thus, while nearly half of the enterprises were placed in Schedule C, another one-third were placed in Schedule B.

Career Background

The popular feeling is that public enterprises are invariably headed by bureaucrats, usually those belonging to I.A.S., etc. But, this is far from being true. Out of 140 chief executives in different public enterprises as on 1-1-1980, only 13 were from I.A.S., 3 from I.P.S. and 5 from other Central Services. Two persons belong to State Services, 88 had prior experience in public sector and seven from private sector.

From the above, it can be said that top management in public enterprises is, by and large, comprised of people with rich professional experience in industrial enterprises, mostly in public sector itself.

Besides, the availablity of suitable candidates with the public sector improved during recent years with the proportion of candidates recommended from within public sector improving from 38 per cent (1974-75) to 79 per cent (1978-79). The relative share of migrants from private to public sector declined from 11 to 3 per cent and that of services from 51 to 18 per cent during the period. Thus, the emerging evidence reveals that the reliance on public sector for top level posts on private sector and services declined sharply during late '70s.

In 170 public enterprises 17.80 lakh persons are employed and of them 1.02 lakh are in managerial cadre. Thus, on an average out of every 100 employees, 5.75 persons are in managerial cadres. However, the proportion of managers among the employees of public enterprises under different ministries vary significantly. The proportion of the managers to total employees is the highest in the public enterprises under Defence Ministry (14.03 per cent) followed by those in the Ministry of Chemicals and Fertilisers (12.99 per cent) and Shipping and Transport (12.19 per cent). As against this, the corresponding proportion was the least in the Ministry of Food, Agriculture, Irrigation and Rural Reconstruction (1.54 per cent) and Energy (2.3 per cent)

> *The available information indicates that the general impression created among the public that a large number of public enterprises are topless is, to say the least, incorrect and misleading.*

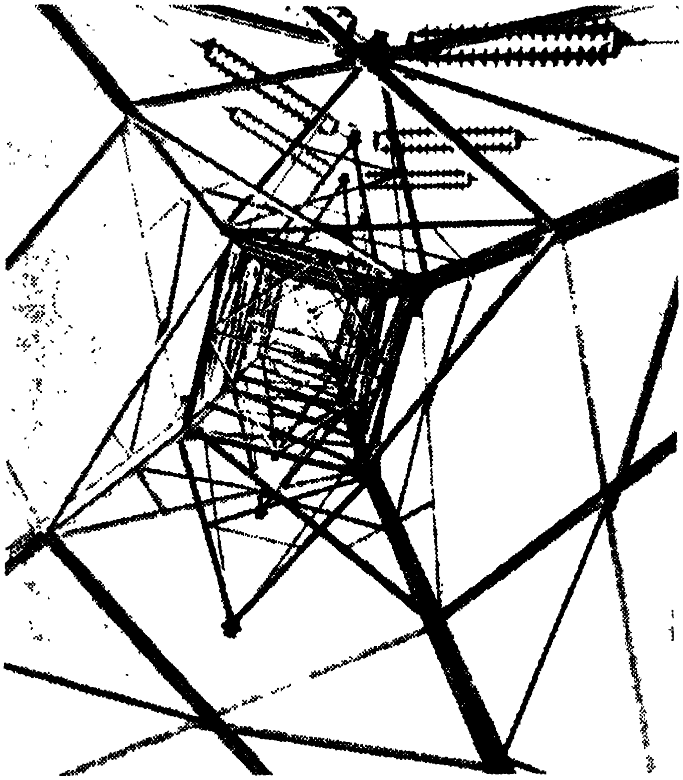
It is believed that the general notion about the public enterprises is that they are flooded with deputationists. But, the fact is that it is not so, at least in Central Government public enterprises. Out of 69,805 managers in 170 public enterprises there were only 1,726 deputationists (2.48 per cent)

Succession Planning

Considerable efforts have been made in the last two decades in the area of succession planning for top and senior levels of management in the Public enterprises. These efforts include schemes for spotting, servicing and selecting managerial talent to man senior and top level posts in public enterprises, evolving selection and recruitment procedures for those posts, reducing dependence on deputationists from the government and encouraging training and management development. Public enterprises are treated as the family and it is stressed that successful enterprises should not only build their own management cadres but also train people and throw up talent for manning responsible positions in other sister public undertakings. Mobility of personnel is achieved by lateral transfer from one unit to another. To facilitate this the Government has prepared 'Sectoral and 'Functional' panels of managerial talent and decided that the persons moving from one public enterprise to another should get the benefit of transfer expenses and carry forward of leave, gratuity, etc.

The BPE has indicated in its latest survey of public enterprises (1978-79) that further refinements in the succession planning is one of the challenges that lie ahead. A system where the succession apointee is invariably placed in position as an under-study before the Chief Executive or a functional Director relinquishes charge should be introduced. Such a system exists in some of the most efficiently run private sector companies. Prolonged vacanices in top and senior posts in public enterprises, flight of high flier mangerial personnel from public enterprises to private sector/international organisations, achieving the desired 'level of vertical and horizontal mobility are some of the problems that persist.

The present system of maintenance of data on managerial talent scanning, retrieval and presentation of relevant information about the availability of sutable candidates for various vacancies, especially at the top level before the PESB leaves much to be desired. One may suspect whether the present set up and the organisation of data bank is based on who knows whom rather than a scientific and foolproof system. It is often difficult to say whether the PESB is enabled to focus on the best and the brightest always ; if not, whether anything can be done to ensure this and how and at what cost? □



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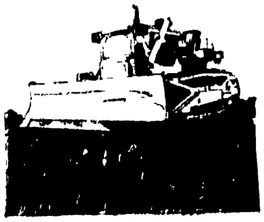

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Indian Railways : An Assessment

Satish Jha*

THE performance of Indian Railways needs to be assessed both in physical and financial terms. For, a comparison of the two may point towards certain anomalies in the policies regarding the role of the railways as well as the internal viability of the network.

The first striking feature in the development of this largest State sector network in the country has been that even though the total investments in book value terms have grown by over seven times the growth in the track route length has been only of the order of 13 per cent over a span of thirty years. Most of this growth occurred during the first three five year plans and this period witnessed an increase in the total route of about 9 per cent while the rolling stock grew by about 25 per cent. Most of the added capacity in locomotives was steam powered and diesel and electric driven engines still comprised only a minor fraction of the total locomotive rolling stock.

The coaching stock however witnessed an impressive growth at an average annual rate of 5 per cent both in the case of passenger and goods wagons.

The number of workers increased at an annual rate of over 3 per cent while the cost of staff in current terms escalated at the rate of about 11 per cent per annum.

In comparison to the above growth obtained in the railways' infrastructure, their output fared a little better. The output measured in terms of passenger kms rose by about 3 per cent annually while the goods traffic in ton kms witnessed an impressive growth at the rate of about 11 per cent. In terms of tonnage also the goods traffic during this period more than doubled.

But the beginning of the plan holiday marked a watershed in the railways' development. Since 1965-66, the pace of track addition programme came down to almost one third of the earlier phase. Similar trends were noticed in the expansion of rolling stock as well. Number of steam locomotives by the end of 1979 came down to the 1949-50 level as a result of the strategy to expand quickly in terms of carrying capacity of the locomotives which laid stress on acquiring more and more diesel and electric locomotives. Thus while the number of electric engines during 1965-66 to 1978-79 more than doubled, the number of diesel engines grew to almost three times. Coaching wagons, however, grew at a very slow pace. The number of passenger wagons rose at a paltry rate of 1.3 per cent and the growth of goods wagons was still meagre at well below 1 per cent. But unlike the pre-plan-holiday period, during this period the rate of growth of passenger traffic was quite high, about three times more than the goods traffic.

This picture of relative growth of various components of railways during the two periods of comparable span has been put forth to drive a few points home viz., that during the period of planned growth in the Indian economy expansion of the railways was substantial relative to the post 1965-66 period and during this period the goods traffic was given preference over the passenger traffic which apparently was the need of the hour. Later on even though diesel and electric traction capacity increased substantially, it could only marginally exceed the capacity lost due to laying off of steam locomotives. Adequate investments in the track expansion and track renewal programmes were not made while demand for the use of railways' existing capacities was still growing.

Lack of investment has left two striking effects—one on the transport policy in India and the other in the deteriorating performance of the railways.

This lack of investment has left two striking effects—one on the transport policy in India and the other in the deteriorating performance of the railways. Whereas since 1965-66 there has been a marked shift towards the diesel based road transport on the one hand, for the past few years a consistent decline in the total goods traffic carried by the railways is noticeable in the other. After having achieved a peak during 1976-77 at 212 million tonnes of revenue earning traffic it has levelled off to about 200 million tonnes per annum. What is striking is that even this level of goods traffic was achieved only after the oil crunch when after the total tonnage having stagnated around 170 million tonnes for six years suddenly shot by over 20 million tonnes during 1975.

Railways Productivity

The railways productivity measured in terms of capital-output ratios also conform to the above mentioned trend. As during a period when investments are being made in an enterprise while its full capacity is not being put to use the capital-output ratio naturally remains high, but with the show down in the investment and augmented use of capacity the ratio starts declining. This at least has been the case with the railways since independence. Since 1965-66 their capital-output ratio has been declining which need not be mistaken to be a simple indication of their efficiency. Rather it shows increasing use of machine and equipment in the absence of adequate investment.

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* Assistant Editor The Financial Express.

Since the beginning of the plan holiday the railways investments have been only marginal while the passenger use has increased considerably. But laxity in opening new tracks and track renewal programmes along with poor maintenance of the old tracks has contributed a great deal to what we have been witnessing as a sudden spurt in the rate of accidents in the Indian railways. The prime reason for all these has been that the rate of growth of expansion programmes in the railways has not kept pace with the demand that a growing economy has been posing on it. Most of its capital stock is overaged and needs renewal. Besides there are demands for expansion of both its track-route and rolling stock. All these require heavy investment as what is represented by the book value of total investment is not the real value of investment. On the basis of replacement cost of machine and equipment the cost is easily four to five times higher than what is shown in the book value. But in the absence of adequate investment forthcoming the railways may have to increasingly bear with the situation of many more than just 36000 wagons—which are presently reported as sick—being sick. The proposed volume of investment in the current plan is going to pose still more pressure on the railways while given the present infrastructure the railways may find it difficult to maintain their share in the movement of traffic originating from coal belt alone.

To a considerable extent this situation has been brought about due to an outmoded financial system of the railways. Since they are organised as a department of the government they have certain advantages over other enterprises in that they do not have to pay any taxes on their income. Also as all the investment requirements of the railways are met from the General Exchequer they do not have to pay market rates of interests and even the burden of declaring dividends at the rates considered fairly normal in the commercial world, is not there. This, however, instead of being used to the benefit of the enterprise has normally not been put to use towards this end. Generally the railways have been content with declaring less than 5 per cent of the dividend inclusive of interest during the best of the times and yet have shown net loss during eight years since 1966-67.

In order to grow, any enterprise must generate enough resources to keep itself going and over and above that it must also earn enough to maintain its health and finance its further expansion. The railways have at best been able to achieve the first of these objectives.

Depreciation

An important thing to be mentioned here is the depreciation provision in the railways. Normally an enterprise would be expected to contribute towards the depreciation the amount which may be considered as having been eaten in the process of operation. But in so far as this contribution is based on mere book value, on the original or the historical cost of the machinery and equipment, it would not represent a true value of the depreciation requirements. Similar has been the case with the railways and if depreciation allowance is made on the basis of replacement cost one would find to his dismay that the railways have been eating into their capital for over a decade now. Besides even at the book value rate the depreciation provision has been inadequate. This has contributed considerably to the lack of track renewal and rolling stock replacement programmes of the railways.

Even in the current plan the public sector outlay for railways is not in keeping with ever the National Transport Policy Committee's projection of the railways carrying about 650 million tonnes of goods traffic which would necessitate a three-fold expansion of the present goods coaching capacity of the railways.

Besides, even going by the annual reports based on the book value accounts the railways seem to have performed very miserably inasmuch as during the past 30 years they have earned a cumulative surplus of about less than Rs. 200 crores as has been shown by the Rail Tariff Enquiry Committee. During this period the railways showed a net surplus only till 1965-66. But with the beginning of the plan holidays they started incurring losses which continued for five years at a stretch followed by two years of marginal profit. The following year (1973-74) saw the beginning of a triennium of renewed losses. And by 1975-76 in book value terms the railways had earned enough losses to offset all the accumulated gains during the past 25 years of railways functioning. What is interesting to note is that these losses were incurred despite reasonably high gross revenue receipts in those years. Obviously the operating ratio had gone up due to increased operation and maintenance costs. This was made possible primarily because of the inadequate depreciation provision in the past years.

It is a generally accepted fact that in order to grow an enterprise must generate enough resources to keep itself going and over and above that it must also earn enough to maintain its health and finance its further expansion. The railways have at best been able to achieve the first of these objectives. But they have not been able to keep either their health as is reflected in the rising age of its capital-stock (which has risen from about 12 years during early 60s to over 16 years towards the end of the 70s). This has also hampered their further growth as in the absence of self generated resources funds for their expansion must come from some other surplus earning sectors.

Pricing of Services

This state of affairs has come about due to disproportionality in the pricing of services rendered by the railways compared to other sectors. During the past 30 years while the cost of all the inputs used by the railways has gone up by 4 to 5 times, the railways tariffs both for passenger and goods have risen at about half that rate. In essence it has meant that the railways have been subsidising the rest of the sectors of the economy at their own expense.

But the railways have to pay an increasingly significant role in the Indian economy particularly due to the oil crisis which is likely to not only outpace road transportation but make it less reliable also owing to the uncertainties in the supplies of fuel oil. The oil importing developing economies in general and India in particular may have to switch over to a railway system which will depend on an alternative form of energy other than oil. With currently available alternatives the most likely form seems to be the electric traction which would depend mostly on coal as a fuel though indirectly—as an input for power generation

The task of expansion of the railways in India is all the more critical and gigantic considering the low level of track route per million of population which is only about 96 kms. compared to over 3000 kms for some developed countries and the increasing cost of laying new tracks. As stated earlier a large part of the railways track are overaged and need immediate renewal. All this will involve massive investments. On the other hand during the planning era the share of railways in total public sector outlays has been dwindling.

While during the first five year plan about 20 per cent of the public sector allocation was towards development of the railways it has steadily come down to less than 5 per cent during the plan 1978—83. Similarly plan outlay for railways as a per cent of total allocation for transportation sector has come down from over 60 per cent in the first plan period to about 30 per cent during the current plan. This itself shows the benign or not-so-benign neglect the railways suffered in the hands of our planners during the past three decades. And even in the current plan the public sector outlay for railways is not in keeping with even the National Transport Policy Committee's projection of the railways carrying about 650 million tonnes of goods traffic which would necessitate a three fold expansion of the present goods coaching capacity of the railways. Thus if the railways have to play a significant role which they must, considering that other alternative i.e. oil based road transport is increasingly will be beyond the capacity of even more developed nations, a new investment plan for the railways will have to be started. Further, their financial system must be improved upon to allow them to generate enough resources for not only just operating but also their upkeep and further growth. Issues relating to their ageing managerial practices will also have to be sorted out. But these issues will get resolved once the railways are accorded the priority they were given during the early years of planning process. □

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Facts About our Petroleum and Petrochemical Industries

Demand

IT is proposed to discuss the subject in four main parts, viz., demand for petroleum products. refining and marketing, oil exploration and production and petrochemicals.

Demand

Petroleum products may be divided into three groups popularly called light distillates, middle distillates and heavy ends In the category of light distillates are motor spirit and naphtha. Middle distillates comprise kerosene, avaiation turbine fuel, diesel oil and light diesel oil. Heavy ends consist mainly of fuel oils. The following table gives their respective percentage shares in total consumption of production.

	72-73	74-75	76-77	77-78	78-79	79-80
Light distillates	15.2	15.7	16.8	16.6	16.3	15.0
Middle distillates	49.5	51.3	52.3	53.9	54.0	54.6
Heavy ends	35.3	33.0	30.9	29.5	29.7	30.4

Consumption of motor spirit has come down from 7% in 1972-73 to 5% in 1979-80 due to high excise duties to curb elitist demand. Consupmption of naphtha had gone up from 6% in 1972-73 to 8.9% in 1978-79 though in 1978-79 the consumption was only 8.2%. This depends on the functioning of the fertilizer units. Consumption of kerosene has been gradually declining from 16.2% in 1972-73 to 13% in 1979-80. This may be due to the increased use of LPG and high prices leading to lesser adulteration. On the other hand, consumption of diesel oil has increased from 22% in 1972-73 to 32.8% in 1979-80 reflecting the rapid growth of road transport, modernization of agriculture and conversion to diesel—electric railways. There has been a marginal decline in the consumption of fuel oil from 26.1% in 1972-73 to 23.5% in 1979-80 as a result of a deliberate policy to substitute domestic coal for oil wherever feasible.

The annual growth rate of consumption of petroleum products which was 8.2% in 1972-73 decreased to 3% in 1973-74 and was negative in 1974-75 because of steep increase in prices and has since been gradually climbing to 9.8% in 1978-79. It was however only 6% in 1979-80 partly due to non-availability of products.

Quantity-wise the total consumption has increased from 21.73 million tonnes in 1972-73 to 29.65 million tonnes in 1979-80.

Demand projections have been prepared by the Indian Institute of Petroleum for the next ten years in consultation with the concerned Ministries. These are projected as follows together with the annual growth rates :

	Demand (Million tonnes)	Growth rate (%)
1980-81	33.27	12.2
1981-82	36.77	10,5
1982-83	39.62	7.8
1983-84	42.70	7.8
1984-85	45.84	7.3
1985-86	49.02	6.9
1986-87	52.05	6.2
1987-88	55.26	6.2
1988-89	58.79	6.4
1989-90	62.56	6.4

For the period 1979-80 to 1984-85, the average growth rate is 10.6% for light distillates, 9.8% for middle distillates and 7.1% for heavy ends. The overall growth rate is 9.1%. For the period 1984-85 to 1989-90, the growth rate is 3.5% for light distillates, 8.5% for middle distillates and 3.6% for heavy ends and the average growth rate is 6.4%. Middle distillates, which were 54.6% of the total consumption in 1979-80 rise to 56.3% in 1984-85 and to 61.9% in 1989-90. This group of products, therefore, determines our refining capacity.

In Western Europe, the consumption pattern is about 22.7% of light distillates, 31.8% middle distillates and 45.5% heavy ends. Ultimately the particular pattern of energy consumption and the role of petroleum products within any one counry is likely to depend upon :

(i) the state of development of the economy and the style of living of its people ;

(ii) the pace of expansion enjoyed and anticipated ;

(iii) the size of the country, the dispersal of its population and economic activity ; and

(iv) the availability and relative cost of other energy sources.

Refining & Marketing

In the refining and marketing sector, Indian Oil Corporation (IOC), Hindustan Petroleum Corporation (HPC), Bharat Petroleum Corporation (BPC) and

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* Joint Secretary & Financial Adviser, Ministry of Petroleum, Chemicals and Fertilizers.

Bongaigaon Refinery and Petrochemicals Ltd. (BRPL) are wholly owned by the Government. In the other two companies, namely, Madras Refineries Ltd. (MRL) and Cochin Refineries Ltd. (CRL), there is some foreign equity participation. Digboi Refinery is owned by Assam Oil Company with complete foreign equity participation.

The refining capacity is today 31.83 million tonnes. The details are :

	(million tonnes/annum)
Digboi (AOC) .	0.50
Gauhati (IOC) .	0.85
Barauni (IOC)	3 33
Koyali (IOC) .	7.30
BPC, Bombay .	5.25
HPC, Bombay .	3.50
Cochin (CRL) .	3.30
Madras (MRL)	2.80
Vizag (HPC) . .	1.50
Haldia (IOC) . .	2.50
Bongaigaon (BRPL)	1.00
Total . .	31.83

The Department had set up two committees to suggest on techno-economic considerations, secondary processing facilities and refinery expansions and grass-root refineries. As a result, Government has approved a FCC unit at Koyali Refinery, a second delayed coker at Barauni refinery, a FCC unit at Cochin and a FCC unit at BPC, Bombay. It has further been decided to expand Madras refinery from 2.8 million tonnes to 5.6 million tonnes, Vizag refinery from 1.5 million tonnes to 4.5 million tonnes. It is also under consideration to expand the Cochin refinery by 1 million tonne and Haldia refinery by 3 million tonnes. These projects are likely to be commissioned in 1984-85, raising the refinery capacity to about 40 million tonnes. This will still leave a gap in the refining capacity of 2.55 million tonnes in 1984-85 which will rapidly increase thereafter unless new refineries are established. Accordingly, Government has decided to set up two grass-root refineries of 9 million tonnes per annum capacity in 1985-86. Unless the demand is checked, we may require a 6 million tonnes/annum refinery almost every year from 1987-88.

The marketing organisations are IOC, HPC, BPC and AOC Indo-Burma Petroleum Co. Ltd. (IBP), which was a subsidiary of IOC and now an independent company also sells some petroleum products which it obtains from IOC. IOC is responsible for the marketing of products of MRL, CRL and BRPL. Therefore, with the exception of AOC, the entire distribution of petroleum products is under public control. The marketing and distribution network of the oil industry is widespread. The industry had, as on 1-4-1979, a network of over a dozen main port|upcountry installations, supply pipelines and tap off points over 120 upcountry depots, 11,731 retail outlets, about 548 multipurpose centres and 58 farm fuel outlets. Broadly, the share of IOC is 60 per cent, of BPC 16 per cent and of HPC 17 per cent.

Exploration and Production

In oil exploration and production, the major institutions are the Oil and Natural Gas Commission (ONGC) (a public sector undertaking), Oil India Limited (OIL), presently owned 50-50 by Government and Burmah Oil but in the process of being fully nationalised. ONGC is by far the largest undertaking. Initially part of the Geological Survey of India, it became an independent statutory commission in 1959. ONGC made discoveries onshore in the 1960's in Assam and Gujarat and off-shore in the mid 1970's to discover the giant field of Bombay High. It is currently active in exploration both onshore and offshore. OIL's activities are restricted to small producing areas in Assam, Arunachal Pradesh and a small onshore/offshore concession, Mahandi basin.

India's refining capacity at present is 31.83 *million tonnes whereas the demand is over* 33 *million tonnes.*

Starting from 0.04 million tonnes in 1961-62, onshore production of ONGC is today around 5.1 million tonnes/annum. Although exploratory work has been carried out practically all over the country, production could be established only in Gujarat and Assam. Wells have so far proved dry in Bengal, Ganga valley, Himalayan foothills, Rajasthan and Cauvery. About 275 structures for drilling were identified by geological and seismic survey work. Drilling was done on 170 structures and hydrocarbons were found in 55. While the success ratio of discovery is good, much seismic survey work still remains to be done. On the offshore, commercial oil fields have been established at Bombay High, R-12, B-37, B-38 and North Bassein in the Arabian sea. Gas fields have also been established in the Arabian sea at South Bassein, B-55, Mid-Tapti and South Tapti. Recent discoveries of hydrocarbon bearing structures are Andamans, Ratnagiri, Godavari and Portonovo. ' Wells drilled Kerala, Cauvery, Kutch and Bengal offshore basins have proved dry. Out of 46 structures taken up for drilling, 21 were found hydrocarbon bearing. OIL has discovered oil in Arunachal Pradesh. The second well in Mahanadi is under drilling and has shown interesting data.

In the Five Year Plan commencing 1980-81, ONGC expects to step up production from offshore from 5.2 million tonnes in 1980-81 to 13.2 million tonnes in 1984-85. The production in the Western region will actually decline during the five year period because Ankleshwar crude has to be preserved for the IPCL and the production of North Gujarat crude cannot be increased till the secondary processing facilities in Koyali are ready. As regards the Eastern region, the production will be stepped up from 1.7 million tonnes in 1980-81 to 3.0 million tonnes in 1984-85 to make up for the declining production of OIL. In brief, OIL, will produce 14.4 million tonnes and ONGC will produce 79.0 million tonnes in the five year period. ONGC hopes to add more to its recoverable reserves than what it draws during the period. The gas discovered is sufficient to supply feed stock for 10 fertilizer units, 2 or more gas crackers and twice the current availability of LPG.

Sometime ago, a joint Soviet-Indian team had carried out a geological survey. According to this team, recoverable reserves are 1500 million tonnes of oil and 5000 million tonnes of gas. Of these, proven recoverable reserves are about 366 million tonnes of oil and 352 million tonnes of gas. Over 60 per cent of the recoverable oil restrves are offshore. The most prospective basins are Cambay, West Bengal and Assam/Arakan.

Having regard to the organisational and technical capabilities of the two companies and in view of the steep increase in the price of crude oil since beginning of 1979, Government has decided to invite foreign parties to explore both in offshore and onshore areas. Not only will this help in knowing quickly our inventories of crude oil and gas, it will also update the technology of ONGC which will be actively associated with the foreign parties.

Imports

Given the demand and indigenous crude production as indicated above, our requirement of imported crude oil and products may be as follows :

(Million tonnes)

	Crude oil	Products
1980-81	16.4	8.0
1981-82	15.3	7.1
1982-83	15.2	8.1
1983-84	14.5	11.2
1984-85	21.7	6.8

Though the index of self reliance (own production as a percentage of total requirement) has increased from 5.4 per cent in 1960-61 to 34.8 per cent in 1970-71 and to 35.9 per cent in 1979-80 and will be about 43 per cent in 1984-85, still foreign exchange outgo as a proportion of export earnings has been rising steeply and it may be about 70 per cent in the current year. In value terms, the import of crude oil and products during 1980-81 may be more than Rs. 5,000 crores as against Rs. 1551 crore in 1977-78.

We have a unique pricing system for crude oil and petroleum products. The prices of indigenous offshore and crude oil were fixed on the recommendations of the Oil Prices Committeee, allowing ONGC a reasonable return on the capital employed. The prices of petroleum products are based on a weighted average of the prices of indigenous crude and imported crude oil. Norms and parameters have been laid down for each of the refineries and marketing companies. Though these are administered prices and put simply on cost plus basis but the organisations are closely monitored with reference to the cost norms laid down. Examination of the working of the refineries reveals that their performance is as per international standards.

Conservation

In the context of great uncertainty over future oil supplies and high prices, close attention is being paid to energy conservation. A body called Petroleum Conservation Research Association (PCRA) comprising members of the oil industry, National Productivity Council and DGTD has been set up to make a systematic study of the use of petroleum products and suggest ways and means for their optimum utilisation. In the industrial sector, PCRA has studied nearly 950 industrial units consuming 27.8 lakh Kls of furnace oil and made recommendations on various aspects of fuel efficiency practices. These recommendations have identified a saving potential of 3.60 lakh Kls of furnace oil of which 1.61 lakh Kis have already been realised by the users. PCRA has completed diagnostic studies in 24 depots of various State transport undertakings in India. It is expected that the recommended measures throughout the undertakings would lead to an estimated savings of 6 per cent or 57,000 Kls of diesel oil per annum. In addition, PCRA conducts clinics and workshops and screen films on diesel conservation. In the agricultural sector, PCRA has conducted a survey on utilisation of LDO in lift irrigation pumps and diesel oil in tractors. Films and print material have been prepared to educate the farmers on measures to save diesel in tractors and lift irrigation pump sets. In the domestic sector, PCRA has through films, print material and nation-wide education campaign through the press media, sought to educate houswives, motorists and two-wheeler owners on the measures to save cooking gas, kerosene and petrol. These efforts have been further intensified through participation in exhibitions, etc.

In view of the steep increase in the price of crude oil Government has decided to invite foreign parties to explore both in off-shore and on-shore areas.

PCRA receives grants from the Government in addition to some manpower being made available by the Oil companies. Its budget currently is about Rs. 80 lakhs, out of which 50 per cent is spent on publicity.

Petrochemicals

Petrochemicals have registered a phenomenal growth in the world chemical industry in a short span of 25 years since 1950. The four main end petrochemical products—plastics, synthetic fibres, synthetic rubber and detergents—have recorded a growth of more than 20 times. However, the share of the developing countries in these products has been low. In India, a beginning was made in the late 50s and early 60s in the production of plastics and chemicals based on coaltar intermediates such as bezene and phenol as well as fermentation alcohol and calcium carbide. The first major petroleum based aromatics facility was established in 1969 in the Gujarat refinery of IOC for the extraction of benzene and toluene. A large scale olefins unit based on cracking of petroleum Naphtha was established at National Organic Chemical Industries Ltd and downstream chemical and polymer units were also simultaneously started in Bombay. Realising the importance of petrochemicals in national development, Goverment initiated steps in the late 60's towards their large-scale manufacture and established a petrochemicals complex near Vadodara in Gujarat in the public sector run by Indian Petrochemicals Corporation Ltd. (IPCL). Production of aromatics, namely, xylenes and DMT was started by IPCL in 1973 and consequently, the polyester industry could grow substantially between 1974 and 1979. A very large multi-unit olefins complex producing basic olefins such as ethylene, propylene and butadiene and many polymers such as low density polyethylene, polypropylene and poly-butadiene rubber and several industrial chemicals and intermediates such as benzene, acrylonitrile, ethylene glycol and linear alkyl benzene as well as acrylic fibre was established at a capital cost of around Rs. 350 crores and commissioned in 1978-79. This complex has now made available large quantities of polymers, chemicals, fibre and intermediate products. A significant feature of the complex is the realisation of the Government's intention to maximise indigenous capability in various areas instead of establishing the complex as a complete turnkey or a partial turnkey project.

The discovery of Bombay High and Bassein gas has thrown up new and challenging possibilities of expansion of petro-chemicals industry. Government has decided to establish two gas crackers, one in Maharashtra and the other in Gujarat, at an estamated cost of over Rs. 1000 crores. Naphtha derived from Bombay High crude oil is ideally suited for aromatics production. It is, therefore proposed to establish three aromatics projects, one each in Mathura, Bombay and Cochin. A letter of intent has been issued for the establishment of haldia petrochemicals complex based on Naphtha. With the adoption of a multi-fibre policy for textiles, Government proposed to sanction additional capacity for the manufacture of synthetic fibres and their raw materials.

At a time when planning for the future is to be based on a careful use of resources, it is imperative that the industries involving the least consumption of energy are promoted. From the known facts it appears that the essential needs can be more economically met through petrochemical products in certain areas. In addition to these, new developments have demonstrated the potential for combining the virtues of petrochemicals with natural products to the advantage of both, in cost and in meeting specific needs for durability and variety.

As on 1-4-1980, manpower employed was 31,413 in the exploration/production sector, 15,334 in the refining sector, 19,920 in the marketing sector and 5630 in the other units, making a total of 72,297. Capital investment as on the same date of all the undertakings under the Department was Rs. 1630 crores. For 1979-80, all the units had made a gross profit of Rs. 431.20 crores. Net profit to equity was 23.5 per cent and profit on capital employed was 18.4 per cent. The performance of the units under the Department was most satisfactory. ☐

Threshing Mishaps

PUNJAB and Haryana, the states with the highest degree of farm mechanisation, have registered a large number of thresher accidents.

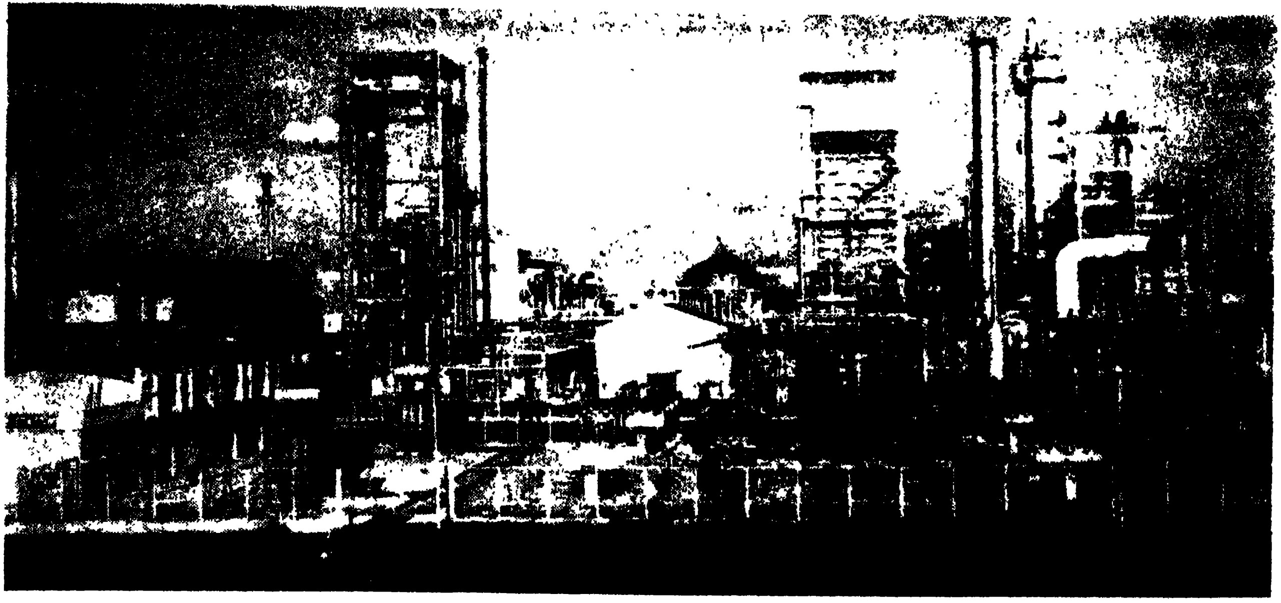
According to the statistics compiled by the Punjab Agricultural University (PAU), Punjab may easily top the 294 mark reached in 1976 when the university had conducted its first survey. In the State 230 accidents have already been reported while data from three districts are stil awaited. Similar, though less specific reports have come in from Haryana. These accidents, incidentally, are besides the limb-chopping by other agricultural implements like toka and cotton ginning machines.

Two major factors are responsible for the continuation of limb-threshing : the big landowners' callousness and the State Government's inexplicable hesitation in enforcing legislations on thresher safety. The Indian Standards Institute set up a committee led by PAU's Dr. S. R Verma, and on the basis of its recommendations laid down certain guidelines for fitting safety devices in the threshing machines. The State Governments had been advised by the Centre to enact legislations making it mandatory for the manufacturers to fit these. But the State Governments have been sleeping over it. They only keep announcing from time to time that the legislation is in the offing.

It is revealing indeed that a large majority of the thresher accidents take place in the rich farmers' fields and most of the victims are migratory labourers from Uttar Pradesh or Rajasthan. In a number of Punjab villages these labourers are being given liquor and opium by the landowner to increase their stamina and efficiency. While the PAU's research attributes five per cent of the thresher accidents directly to intoxication, how many of the 57 per cent due to "inattentiveness" lack of skill and overwork" are basically caused by opium and alcohol is anybody's guess. Most threshing operations are done at night, due to summer heat and power cut during day time. So the PAU research team attributes about five per cent accidents to poor lighting at the threshing site.

Of the approximately eight lakh mechanised threshers in use in the country, two lakh are in Punjab and over a lakh in Haryana. The thresher which involves chaff-cutter blades for chopping the crop before threshing is the most prolific limb-chopper and over 50 per cent of accidents are believed to be caused by this type. This involves the machanism of feed-rollers to pull inward the crop fed through a chute. The result is that once a hand is stuck in the rollers it has little chance of being extrictated. The hand keeps getting pulled in and chopped into small pieces. In many cases the victim is known to have inserted the other, free hand as well to free the entangled one and lost it too in the bargain.

The PAU scientists and the Indian Standards Institution devised two simple devices to make the threshers with feeding chutes safe. It was laid down that the chute should be at least 90 centimetres long and halfway through, a construction should be put so as to prevent the hand from going in further. The second modification, slightly more expensive, is the feed reversing safety system where a knob is provided in the feeding chute which is automatically switched on once the hand goes beyond the safe limit. The feed rollers immediately begin functioning in reverse and expel whatever is stuck in the machine. This hikes the cost of the thresher by about Rs. 300. None of these devices affect the threshing capacity at all and all that the farmer has to put in is a little more initial investment. However, a majority of the farmers are still buying cheaper varieties manufactured in the small scale sector in Punjab cities, particularly Moga and Ludhiana. ☐



An overall view of Fertilizer Factory

Round-up

Hindustan Fertilizer Corporation

HINDUSTAN Fertilizer Corporation Ltd. came into being on April 1, 1978 when the Fertilizer Corporation of India Ltd. and National Fertilizer Ltd. were reorganised into five companies. It has three operating Units at Namrup (Assam) Durgapur (West Bengal), Barauni (Bihar) and a giant fertilizer-cum-chemical complex under construction at Haldia (West Bengal). An additional fertilizer project at Namrup is also on the anvil.

The installed capacity of the plants in operation is around five lakh tonnes of Nitrogen in the form of 10.2 lakh tonnes of Urea and 1 lakh tonnes of Ammonium Sulphate. With the completion of Haldia project and another unit at Namrup the installed capacity for Nitrogen will go up eight lakh tonnes along with 0.75 lakh tonnes of Phosphate and 0.75 lakh tonnes of Potash. Besides, the Corporation will also produce in its Haldia factory about 41,000 tonnes of Methanol and 60,000 tonnes of Soda Ash—two basic raw materials for the chemical industry.

Namrup Fertilizer Factory a sectional view

Natural gas was used as the basic raw material for fertilizer production for the first time in India at Namrup. The 24.20 crore factory has been in commercial production since January 1, 1969.

Further expansion of the Factory was made and Namrup II commenced commercial production since October 1, 1976. The combined total output of nutrients at the Namrup factories is 1,96,800 tonnes of Nitrogen annually. Durgapur Factory has the capacity to produce annually 1,.040 lakh tonnes of Nitrogen in the form of 3.05 lakh tonnes of Urea. The Plant has also started producing 15000 tonnes of industrial grade ammonia annually for the chemical industry.

Technologically, Barauni fertiliser factory has the capacity to produce 600 tonnes of Ammonia per day which in turn is converted into 1000 tonnes of Urea in two streans.

The proposed Haldia complex is designed to produce annually, 1,65,000 tonnes Urea, 5,00.000 tonnes N. P. K. fertilizer, 41,250 tonnes of Methanol and 60,000 tonnes of Soda Ash. The complex will also manufacture Nitric, Sulphuric and Phosphoric Acids, Ammonia and Ammonium Sulphate, surpluses of which can conveniently be taken up by the chemical industry in the eastern region. Haldia will be one of the first Indian plants to use fuel oil as feedstock though there is the flexibility to change over to other petroleum products, including even lower grade crude, should fuel oil prove uneconomical.

Construction work for yet another plant at Namrup will commence soon : Location of the new unit, to be known as Namrup-III (Expansion) has been decided mainly on the availability of natural gas. Partially financed with British aid the plant will cost Rs. 173 crores and will have the annual capacity to manufacture 1.52 lakh tonnes Nitrogen in the form of 3,30,000 tonnes of Urea.

The HFC has also been entrusted with ensuring free flow of fertilizers from the factories to the farmers in the States of Arunachal, Assam Bihar, Madhya Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Orissa Sikkim, Tripura and West Bengal besides the Union Territories of the Andaman and Nicobar islands and the neighbouring Bhutan through an elaborate marketing network.

The HFC has an extremely well-organised Fertilizer Promotion and Agricultural Research Centre where scientists and technologists work in close collaboration with the extension worker to transfer the fruits of research for gainful use by the farmers.

The Corporation has a well-organised training system with well-equipped training institutes at Namrup, Durgapur, Barauni and Haldia.

Modern housing accommodation is provided to the employees in all Units and Divisions. The Corporation maintains at every unit well-equipped hospital and dispensaries manned by well-qualified doctors. There are also primary, higher secondary and model schools in the township for providing free education to the children of the employees. ☐

Round-up

National Fertilizers

NATIONAL Fertilizers Limited (NFL) was set up in August 1974 and given the task of implementing two fertilizer projects at Bhatinda (Punjab) and Panipat (Haryana). On the restructuring of the Fertilizer Corporation of India and National Fertilizers Limited the Nangal Unit of the erstwhile Fertilizer Corporation of India was transferred to the NFL on 1-4-1978. The authorised capital of the NFL at present is Rs. 400 crores With a production of about 2.48 lakh tonnes of nitrogen during 1979-80, the National Fertilizers has emerged as the largest producer of nitrogenous fertilizers in the country. The NFL's turnover during 1979-80 was to the tune of Rs. 142 crores. In terms of investment, the NFL is now the sixth largest company in the country, with a gross investment of Rs. 578 crores.

Nangal Expansion, Bhatinda and Panipat Plants are first of their kind in the country in respect of their size, technology and feedstock. They are based on the latest technology for amonia production by gasification and partial oxidation of heavy feedstock, sophisticated instrumentation and nearly complete automation for process control. Sophisticated modern technology has been adopted for gaseous and liquid pollution control. The old Nangal Plant is based on electrolysis of water and is producing the CAN (Calcium Ammonium Nitrate) as the main end product (fertilizer) and heavy water as main product.

The Nangal Expansion Unit went into commercial production on November 1, 1978. Since then the plant has been performing quite satisfactorily. It has a capacity of 900 tonnes of Ammonia and 1000 tonnes of Urea the balance 300 tonnes is sent to the Old plant for the production of the CAN.

The Panipat which is in commercial production since September 1979 has an installed capacity of 900 tonnes of Ammonia and 1550 tonnes of Urea per day. Bhatinda and Panipat projects have attained on an average about 80 per cent sustained capacity run and on some occasions even exceeding 100 per cent of the rated capacity. During the year 1979-80, the Nangal Unit produced 2.55 lakh tonnes of the CAN, 1.47 lakh tonnes of Urea and 1560 kg of Heavy Water. With an annual rated capacity of over seven lakh tonnes of Nitrogen, the NFL plants are now running on full stream. The NFL has also widened its network of dealers so that the marketing efforts can keep pace with the production efforts. The total number of main dealers now is about 640 and each dealer is having a number of sub-dealers, with the result that the family of dealers and subdealers with the NFL is around 2,500. Direct sale-points at the factory gates at Nangal, Bhatinda and Panipat Plants have also been opened. The Government of India have recommended this to other manufactures for adoption..

Atmospheric Ammonia Storage Facility of 5000 tonnes is being installed at Nangal and it is likely to be ready by the latter half of 1980-81. Ammonia loading and unloading facilities are being set up at Bhatinda and Panipat. Latest pollution control monitoring equipment is being procured for effective monitoring of anti-pollution measures at the NFL plants. For the by-product utilisation the government has issued letters of intent to the NFL for setting up a Methanol Unit at Nangal and an Argon Recovery Unit at Panipat. For Methanol Unit, bids have already been invited by the NFL. ☐

Fertilizer Corporation of India

THE first large fertilizer plant in public sector was set up at Sindri in 1951. After nearly a decade in 1961 the second fertilizer factory was commissioned at Naya Nangal in Punjab. These later were amalgamated to form the Fertilizer Corporation of India Ltd. in January 1961 to give the country a proper lead in the field of fertilizers.

A gradual expansion followed and soon fertilizer plants were set up at Trombay (1965), Gorakhpur (1968), Namrup (1969), Durgapur (1974) and Barauni (1976). Simultaneously expansion projects in the existing plants at Nangal, Trombay, Gorakhpur and Namrup were also taken up.

Besides developing production facilities the FCI also started a full-fledged Planning and Development Division at Sindri to achieve self-reliance in fertilizer technology.

The need for indigenous feed-stock for fertilizer projects became evident after the World Oil Crisis of 1973 leading to the abnormal price hike in the cost of petroleum crude in the world markets. Following FCI's recommendation three major coal-based fertilizer plants, two of which are presently under commissioning trials at Talcher (Orissa) and Ramagundam (Andhra Pradesh), were sanctioned by the Government.

Implementation of the third project at Korba (Madhya Pradesh) will be taken up after the first two projects at Talcher and Ramagundam have been successfully commissioned and stabilised.

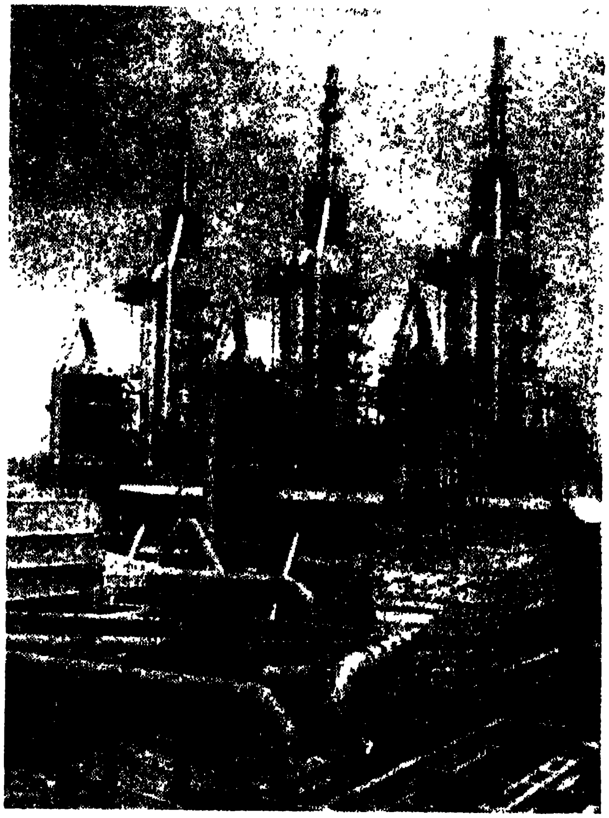
Reorganisation

The Government of India reorganised the two existing public sector Fertilizer Companies namely Fertilizer Corporation of India Limited and National Fertilizers Limited into the following four new companies on April 1, 1978 :

1. The Fertilizer Corporation of India Ltd. (FCI)
2. The Hindustan Fertilizer Corporation Ltd. (HFC)
3. The Rashtriya Chemicals & Fertilizers Ltd. (RCF)
4. The Fertilizer (Planning & Development) India Ltd. (FPDIL)

The Nangal Unit of FCI was transferred to the NFL.

On the eve of reorganisation, the FCI had 7 operating units with an installed capacity of over 9 lakh tonnes of nitrogen and 36,000 tonnes of P_2O_5. In addition four new grassroot projects were under implementation at Haldia, Talcher, Ramagundam and Korba. Simultaneously expansions in the existing plants at Nangal, Trombay (IV & V), Sindri (Modernisation and Rationalisation) were also in hand.



Coal Gasification Plant of Talcher Fertilizer Division of F.C.I.

After reorganisation, the Fertilizer Corporation of India Limited has taken a new form. It has two operating units at Sindri and Gorakhpur. The old Sindri plant at Sindri has been phased out and has given birth to the new Rationalisation and Modernisation projects both of which have commenced commercial production from October 1979.

The Gorakhpur Unit since 1975 has expanded and increased its capacity to 1,30,000 tonnes in terms of Nitrogen.

Besides Sindri and Gorakhpur, the FCI has also in its fold three of the world's largest coal based projects mentioned above.

When all the projects in hand (except Korba) are commissioned the rated capacity of the FCI plants would increase to 8,05,000 tonnes in terms of Nitrogen and 1,50,000 tonnes in terms of P_2O_5 production being in the form of 16,05,000 tonnes of Urea, 3,20,000 tonnes of Ammonium Sulphate and 3,26,000 tonnes of Triple Superphosphate (TSP).

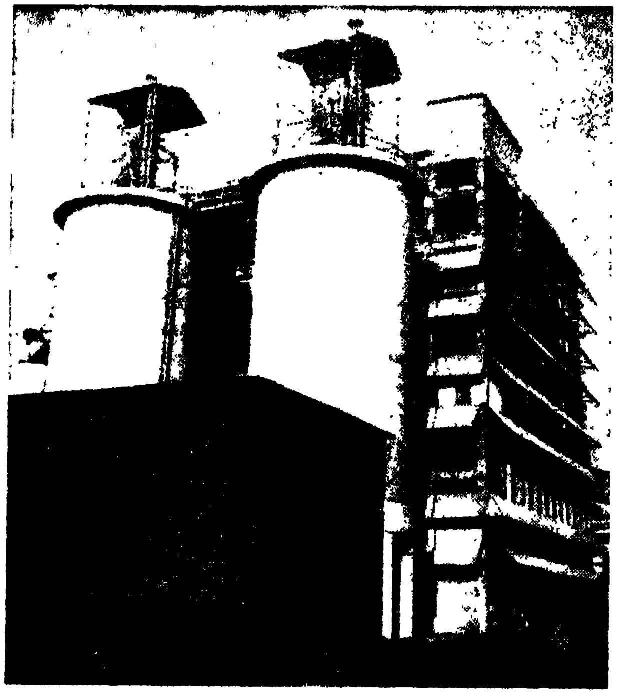
The Rs 60 crore Sindri Rationalisation Project involves the creation of a capacity of 3,26,000 tonnes of Triple Superphosphate (TSP) equivalent to 1,50,000 tonnes of P_2O_5. A novel feature of the project is the availability locally of the by-product gypsum to replace the natural gypsum hitherto hauled all the way from Rajasthan.

The Rationalisation Project comprises a 880 tonnes day sulphuric acid plant in terms of P_2O_5 and a 1,100 tonnes/day TSP plant.

Construction work on Sindri Modernisation Project began in 1975. This World Bank-aided project has been built at a cost of Rs. 179 crore. It has a fuel-oil based ammonia plant of 900 tonnes per day capacity of which 600 tonnes is for conversion to urea in a new facility for 1,000 tonnes per day. The remaining ammonia is converted into Ammonia Sulphate for which the existing plant in the old Sindri complex has been renovated.

The Talcher and Ramagundam coal-based plants have gone into commercial production with effect from November 1, 1980. The Rs. 219 crore Talcher Project has an installed capacity to produce 900 tonnes of Ammonia per day with the end product —4.95 lakh tonnes of Urea per annum. The plant would consume about a million tonnes of low grade coal annually from the nearby South Balanda and Nandira Coal mines situated at a distance of 3 Km. The daily power requirement of 55 MW would be met by Orissa power grid while its daily requirement of 15 million gallons of water would be met from river Brahmani.

A view of Twin Urea Prelling Tower at Gorakhpur



Triple Super-Phosphate Plant at FCI Sindri Factory

The Ramagundam Project in the Telengana Region of Andhra Pradesh is identical to the plant at Talcher. Its daily requirement of about one million tonnes of coal would be met from Singareni Collieries. The Projects power requirement of 55 MW will be met by the Andhra Pradesh State Electricity Board while 15 million gallons of water per day would be drawn from the river Godavari.

The Corporation has developed a multi-channel distribution system for timely and efficient distribution of fertilizers. At present the Corporation's intensive marketing activities are confined to the State of Uttar Pradesh only. In other States the fertilizers produced by Units of the Corporation are handled by sister companies which have been created after the reorganisation of the FCI and the NFL.

Closely associated with the marketing of fertilizers FCI has developed wide ranging facilities for advising and educating farmers in the optimum use of fertilizer and efficient farm management. It is equipped with modern soil testing and research laboratories in addition to mobile soil testing units for on-the-spot free analysis of soil samples.

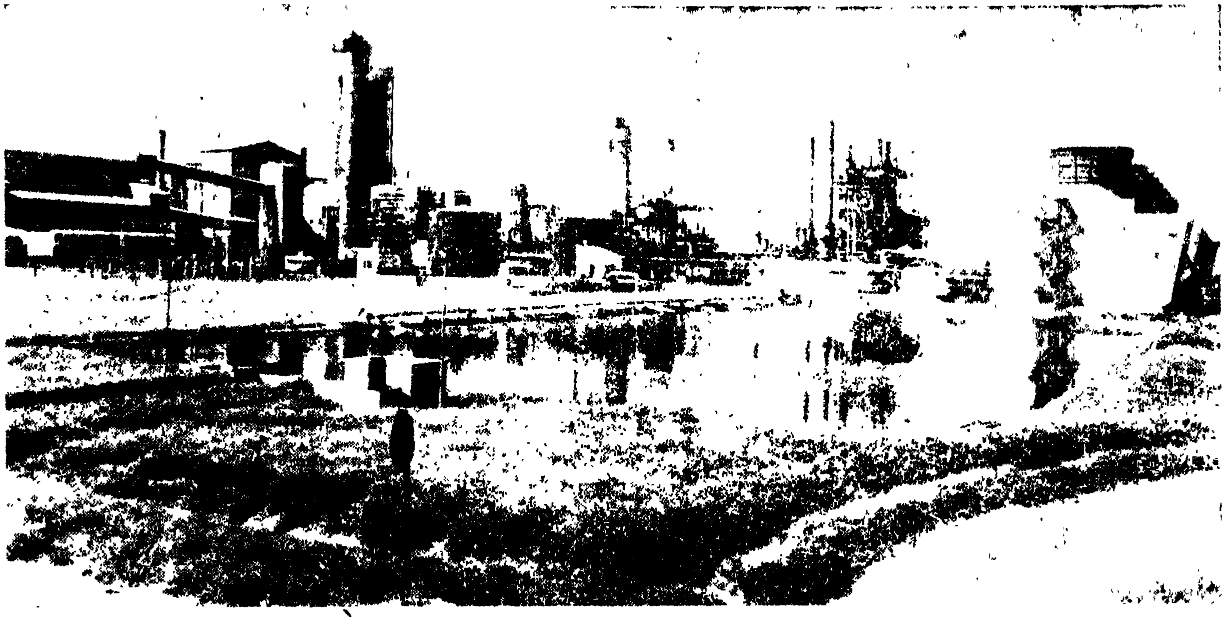
The FCI is operating gypsum mines located in five districts of Rajasthan. The Corporation has the capacity to mine about 4.5 lakh tonnes of gypsum per annum.

The use of gypsum in reclamation of alkali (Usar) soils, has been made recently on a large scale in the states of Haryana, Punjab and Uttar Pradesh. The Corporation has been able to procure a sizeable amount of orders for gypsum for agricultural uses in these states. The FCI is also exploring possibilities for exporting gypsum to Middle East countries and Bangladesh in a big way.

The FCI has a wide range of industrial chemicals, catering to the needs of various industries in the country.

The Corporation's institutes have been providing a large number of trained personnel in the field of fertilizer production to man top executive positions in the country. The Corporation has also trained a large number of trainees from European and South East Asia countries in advanced manufacturing techniques under different collaboration programmes.

Modern self contained townships with their own schools, play grounds, markets, hospitals etc. have been established in places where FCI plants are located.



A view of the Madras Fertilizer Plant

Round-up

Madras Fertilizers Limited

MADRAS FERTILIZERS LIMITED is a public sector organisation established in 1966 The authorised capital of the Company is Rs 14 crore The subscribed and paid up capital is Rs. 13,64,68,000 The equity participation in the company is 51 per cent held by Government of India, 24,5 per cent held by Amoco India, Inc., and 24.5 per cent held by National Iranian Oil Company.

The construction of the plant was completed on May 7, 1971. Commercial production commenced from November 1971. The factory has a 750-tonne per day Ammonia plant and 885-tonne per day Urea plant both laid in a single stream NPK production capacity is 1650 tonnes per day. The current annual capacity in terms of saleable product is 153,000 tonnes of Urea and 540,000 tonnes of NPK fertilizers.

The total MFL Project cost including NPK 'C' Train stands at Rs. 70.53 crore.

The production has been consistently very good all these years. The year 1978-79 has been the best year in production with the total production of all products exceeding seven lakh tonnes. The capacity utilisation has been very high and of the year 1978-79 it was 101 per cent of the rated capacity. The high production rate is continuing.

MFL is marketing its products in the Brand Name of VIJAY. It has surpassed the world safety record held by Mensanto Chemicals, Chicago, USA, in safe operation without any lost time accident. As of November 30, MFL has achieved about 13 million man-hours of safe operation.

MFL obtained the prestigious Management Contract from State Fertiliser Manufacturing Company of Sri Lanka The contract envisages start-up and maintenance of their Urea Plant and training of Technical Personnel in running of the Plant. The contract is for a three-year period.

MFL has been consistently making profit. A net profit of 18.32 crores before tax for the year 1978-79 is the best since the commencement of commercial production. From the year 1975-76, the company has been paying dividend every year to the share-holders.

The total man-power is about 1100. The Employee-Employer relationship is very cordial. MFL has provided many welfare amenities to its employees Foreign exchange saving of Rs. 20.75 lakh has been achieved during 1978-79 and 1979-80, as a result of the company's research and development work. ☐

18 DPD/80—13

Petroleum and Chemical Enterprises: An Assessment

Navin Chandra Joshi*

THE petroleum and chemical enterprises of the public sector constitute the kingpin of our national economy. Both are engaged in the production and sale of crucial products without which perhaps all developmental activities would come to a grinding halt. And yet, it is true that the progress achieved rise very little compared to the requirements Todate there is no substantial alternative to the products of these enterprises and hence the optimisation of our resources in the creation of petroleum and chemical products becomes highly imperative.

Dealing first with pertoleum enterprise. we find that they are engaged in the exploration of crude oil and gas, refining of crude, blending of additives and marketing of petroleum products. As on 31st March 1979 there were ten such enterprises with a gross block amounting to Rs. 1718.28 crores. The effective capital employed during the year 1978-79 was Rs. 1347.51 crores as would be clear from the following Table

TABLE I

Capital Employed in Petroleum Enterprises

(Rs in crores)

	As at the end of	
	March 1979	March 1978
1 Gross Block	1718.28	1257.97
2 Depreciation (cumulative)	845.83	638.33
3. Net Block	872.45	619.64
4 Working Capital	233.11	181.43
5. Capital Employed	1347.51	801.07

The working capital of these ten enterprises (see Table III) is around Rs. 233.11 crores while the current assets are of the order of Rs. 1308.10 crores. It is heartening to note that the performance of petroleum enterprises in terms of financial results has been highly satisfactory. All the enterprises in petroleum sector have been showing profits which were Rs. 173.19 crores during 1978-79 as compared with Rs. 129.02 crores in the previous year The amount of Rs. 173.19 crores is the net profit earned after providing for depreciation, deferred revenue expenditure, interest on loans and tax. A sector-wise analysis of the performance of major groups of public enterprises shows that petroleum sector continues to report profits at a still higher level though it is mainly due to the spurt in prices of petroleum products. The total sale turnover of these enterprises is around Rs. 6400 crores annually. The percentage of cost of sales to turnover works out to 96.4 per cent.

In the capital investment of these enterprises, the Central Government has given loans to the tune of Rs. 198.06 crores while loans from other parties amount to Rs. 257.08 crores. The interest earned by the Government on its loan is about Rs. 24 crores per annum. It would be instructive to know the position of important profitability ratios of these enterprises as a whole. They are as follows ·

(a) Percentage of net profit to paid up capital	37.1
(b) Percentage of net profit to net worth	16.6
(c) Percentage of gross profit to capital employed	21.8
(d) Percentage of value added to capital employed	57.9

Among the ten top Enterprises

In terms of turnover, four enterprises of the petroleum sector rank amongst the top ten enterprises of the Central Government. They are Indian Oil Corporation, Hindustan Petroleum Corporation, Bharat Petroleum Corporation and Oil and Natural Gas Commission. The Indian Oil Corporation's total turnover during 1978-79 was of the order of Rs. 3572.53 crores which comes to 20.08 per cent of the turnover of all enterprises put together. All the units under Petroleum group have recorded more than 75 per cent utilisation. The utilisation of capacity in refineries depends to a large extent on the availability of crude, arranged by Government and allocated by the Oil Coordination Committee. The Madras Refineries Ltd., has the highest utilisation made possible by operational improvements in company management. The Oil and Natural Gas Commission is also showing signs of increased production in the recent years.

The prices of petroleum products are decided mainly in the light of increasing difficulties in procurring the crude as also with the objective of containing the increasing demand for petroleum products. Further determination of prices of petroleum products has to take into account the fact that products like kerosene etc. are items of consumption for the common man and therefore, their prices have to be kept to the minimum. About 57,000 people are employed in the petroleum sector the annual wage bill of which is around Rs. 100 crores. The average remuneration per person employed comes to more than Rs. 17,500 per annum which is indicative of the fact that employees in the petroleum sector are very well paid.

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Coming to the chemicals (including pharmaceuticals) sector of the Central Government enterprises, it may be mentioned that there were fifteen enterprises as on 31st March 1979. The total investment in them amounts to Rs. 2737.51 crores made up of equity and loans. The National Fertilizers Ltd., Fertiliers and Chemicals (Travancore) Ltd., Fertilizer Corporation of India, Madras Fertilizers Ltd., Hindustan Fertilizers Ltd., and Rashtriya Chemicals and Fertilizers are engaged in the production and distribution of chemical fertilizers like Urea, Phosphates as well as complex fertilizers. Hindustan Antibiotics Ltd., Indian Drugs and Pharmaceuticals Ltd., and Smith Stanistreet and Co., Ltd. produce and sell antibiotics pharmaceuticals and surgical instruments. While Hindustan Insecticides Ltd., produces D.D.T. and B.H.C. ,the Hindustan Organic Chemicals Ltd., is engaged in the manufacture of fine organic chemicals and intermediates. Hindustan Salts Ltd., and Sambhar Salts Ltd., (which is a subsidiary of the former) manufacture common salt and other varities of salt. Cement Corporation of India Ltd., produces cement and Indian Petro-chemicals Corporation Ltd., manufactures petro-chemicals based on feedstocks available from refineries in the public sector.

Out of the total investment of Rs. 2737.51 crores, the value of the gross block is Rs. 1251.81 crores. The value of capital work in progress and unallocated expenditure during construction as on 31st March, 1979 amounted to Rs. 1312.83 crores. This amount represents expenditure on various new projects and expansion schemes under construction. Obviously, this expenditure will give returns in future years when the projects are completed and production starts. Table II below gives an estimate of capital employed in these enterprises.

TABLE II

Capital Employed in Chemical Enterprises

(Rs in crores)

	As at the end of	
	March 1979	March 1978
1. Gross Block	1251.81	931.48
2. Depreciation (cumulative)	385.33	383.16
3 Net Block	866.48	548.32
4. Working Capital	368.45	262.87
5. Capital Employed	1235.13	811.19

The current assets in the year 1978-79 were about Rs. 650 crores while current liabilities were Rs. 282 crores during the same period. The value of inventories held by these enterprises was Rs. 352.26 crores at the end of the financial year in 1979. The working capital of these enterprises comes to more than Rs. 350 crores. As for the financial performance of these enterprises, there is a net loss of Rs. 27.04 crores in respect of all the enterprises put together in the year 1978-79. The amount of net loss in the previous year was Rs. 54.39 crores

While the total turnover was more than Rs. 800 crores, the cost of sales was more than this (Rs. 848 crores. The highest amount of loss was incurred by Hindustan Fertilizers Ltd., (Rs. 22.92 crores) followed by Fertilizers Corporation of India (Rs. 15.24 crores) in 1978-79. The maximum net profit was made by Madras Fertilizers Ltd., and it was of the order of Rs. 18.15 crores.

Capacity Utilisation

Capacity utilisation in fertilizer units ranges from 5 per cent to 106 per cent. It is much better in chemical units with a minimum of 52 per cent to as much as 114 per cent. The total number of employees working in this sector is about 65,000 with a wage bill of Rs. 7,335 lakhs per annum. The Government has been incurring expenditure on subsidy of fertilizers to the extent of about Rs. 80. crores per annum. Recently, fertiliser prices were rationalised on the basis of recommendations of the Bureau of Costs and Prices but the pricing of drugs has still defied a rational approach. Industrial relations have been good, by and large but for the Indian Drugs and Pharmaceuticals Ltd., which suffered from a strike for about two months in 1978. In the pricing of drugs the Government has to keep the interest of the consuming public upper-most in its mind. As such, the drug units cannot be treated strictly on a commercial basis. The increasing cost of inputs in fertiliser units has been responsible for escalating their loss to the tune of Rs. 121.4 crores during 1979-80 when the total loss of all public enterprises put together is around Rs. 149 crores for the year 1979-80. In view of this situation it is now high time that overall efficiency is brought about in the functioning of these units so that cost of production could be brought down. It is true that the products of fertiliser and drug units cater to the needs of the poor people in this country and such people constitute the majority of the population. As such, the scope for increasing prices is little. Improvement in production and demands can be effected only through better operational efficiency which must reflect in cost and quality

Oil Production

The production of oil in India was just 0.5 million tonnes in 1961 and it increased to more than 12 million tonnes in 1979. The projections for output by 1985-86 are about 15.5 million tonnes per annum. Our domestic production figures fall far short of our present requirements of 20 million tonnes which are likely to rise to 36 million tonnes by 1982-83 depending on the progress made in improving fuel usage and developing substitutes, particularly coal. Foreign exchange spent on crude oil imports in 1975-76 was about Rs. 10,780 millions for about 14 million tonnes. Now this expenditure has gone up and is presently more than Rs. 15,000 million per annum as oil prices have been going up from year to year.

In view of the small quantity of the known reserves of petroleum in the country, there is a crucial need to crutail the use of oil wherever it is possible and we may depend upon alternative sources of energy provided by the public sector. Some of the major areas of saving could be (i) converting power stations using oil as the primary fuel to coal along with reduction of fuel oil as a supplementary fuel; (ii) expansion of rural electrification and rapid switchover to electric traction on railways; and (iii) appropriate pricing policies to curb the use of oil, e.g., the use of private transport, along with encouragement to mass transport.

The country has approximately 385,000 sq. kms. of off-shore shelf area (where water depth is within 200 metres). The ONGC has carried out survey in the Gulf of Cambay, Arabian Sea, Gulf of Kutch, Coromandal Coast, areas of Krishna-Godavari delta and the area South of Sunderbans extending westwards, and have discovered 18 structural features which are favourable for oil accumulation. Even if these and other measures give us more oil, the gap between production and consumption threatens to continue to widen. The Sixth Plan has provided for Rs. 1800 crores for Oil and Natural Gas Commission and Rs 133 crores for Oil India Ltd. for an intensive programme of off-shore and on-shore exploration on the Indian Continental shelf. Foreign collaboration is also envisaged for carrying out oil exploration in other off-shore regions. The ONGC has already spotted potential areas for oil in the Arabian sea and the results of the wells drilled in Bombay High are very encouraging.

TABLE III

Serial No.	Name of enterprises	Year of incorporation
1.	Bharat Petroleum Corpn Ltd	1976
2	Cochin Refineries Ltd.	1963
3.	Hindustan Petroleum Corpn Ltd.	1974
4.	Hydro Carbon India Pvt. Ltd	1965
5.	Indian Oil Blending Ltd	1963
6.	Indian Oil Corpn. Ltd.	1959
7	Indo-Burma Petroleum Co Ltd.	1971
8.	Lubrizol India Ltd.	1966
9.	Madras Refineries Ltd.	1965
10	Oil & Natural Gas Commission	1956

Drug Industry

The story of drug and pharmaceutical industry has been none-too-encouraging. There is not only an utter shortage of drugs and formulations in the country but the output itself becomes quite uncertain in some periods when the drug manufacturing units suffer from strikes or lock-outs. It is high time that strikes in the drug industry are totally banned. The statement of the Minister for Petroleum and Chemicals in the Rajya Sabha on November 24, 1980 is reassuring that the Government was doing its utmost to meet the situation of shortage by imports, increased production and by making available equivalent drugs. Apart from labour unrest, power cuts and capacity constraints have come in the way of smooth and regular production.

Unfortunately in our country there is a kind of cut-throat competition going on between private sector and public sector units of this industry. Presently only 6 per cent of the drug manufacturing units are in the public sector, 78 per cent in foreign sector and 16 per cent in the Indian private sector. Apparently, the public sector units are facing keen competition with foreign firms engaged in drug manufacturing. Therefore, our public sector units have not only to run smoothly, give continuous production and so on, but also to improve quality of their products without enhancing the price.

Research and development forms the backbone of the drug and pharmaceutical industry. In order to achieve self-reliance and to meet future requirements, a chain of laboratories like Central Drug Research Institute, Lucknow and similar other organisations have been set up. They have done some significant improvements in the existing technology by developing new processes. The public sector units have still to go a long way in bringing about some outstanding formulations so as to capture the foreign market as well. At the same time, they have to concentrate on supplying drugs of mass use in adequate quantity without any interruption. Since improvement in drug industry, unlike the petroleum industry, depends entirely on our domestic know-how, better management and sufficient research work, this aspect needs to be given all the emphasis.

Fertilizer Industry

As for the fertiliser industry, it has made rapid strides. Indigenous production in this sector meets about 53 per cent of the demand and the public sector units have mainly contributed to the increased production. With intensive farming, increase in the cropped area and other efforts to make the country self-sufficient in food, there is a commensurate increase in the consumption of fertilisers. It is common knowledge that the level of fertiliser consumption is quite low as compared with that of other countries. Besides, their prices have been going upmaking it quite prohibitive for small and marginal farmers.

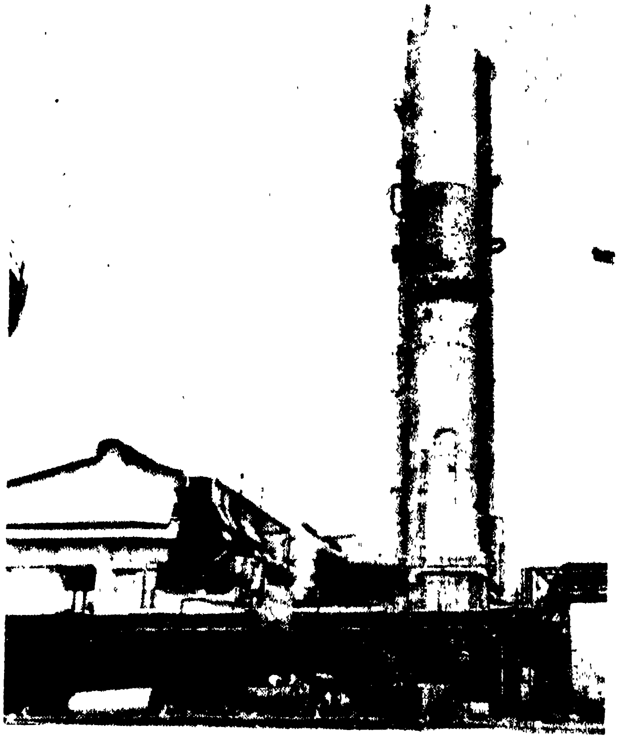
It is common knowledge that apart from inadequate marketing facilities and lack of purchasing power of the farmers, natural calamities and inadequate irrigation facilities, high prices, inadequate imports, inadequate promotion measures, lack of adequate credit facilities in several areas, and insufficiency of retail points at convenient distance from the various rural points have contributed to the decline in fertiliser consumption. Needless to say that the country is spending a lot of foreign exchange in the import of fertilisers from abroad. If this money could be saved, the pace of our industrial progress would be faster. Here again, intensive research needs to be done on the use of various raw materials, diversification of products and the lesser use of petroleum products. In fact today we need a massive programme for the development of organic manures in the country in view of its importance in building up soil fertility and also because of constraints in the availability of fertilisers. The programme should concentrate on preparation of rural and urban compost, distribution of sewage and sullage, intesification of green manuring and establishment of gobar gas plants.

To conclude, the petroleum and chemical industries, being the back-bone of agriculture and industry, need to be given a high priority in production programmes and their management. The public sector units have a very difficult role to play as they are faced with a number of constraints. They have therefore, to overcome them in such a way that the interest of the common man they serve does not suffer. Only then the public enterprises in these industries can justify their existence. No sacrifice should be too great in setting their own house in order.

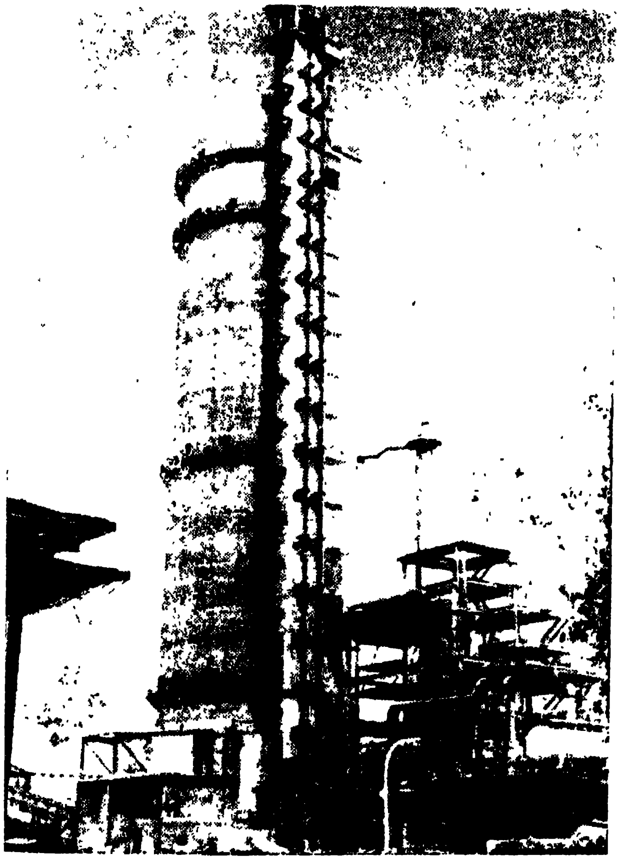
Rashtriya Chemicals & Fertilizers

THE Rashtriya Chemicals & Fertilizers Ltd. (RCF) was incorporated on March 6, 1978, on re-organisation of erstwhile Fertilizer Corporation of India Ltd. and National Fertilizers Ltd. The RCF is responsible for operation of Trombay Unit, implementation of new expansion projects and marketing of various fertilizers and industrial chemicals. Since 1965, when the first phase of plants were commissioned at Tormbay, several diversification and expansion projects have been successfully implemented at Trombay site itself and now it is a big chemical and fertilizer complex having twenty operating plants.

The Trombay Complex consists of the following plants : Ammonia, Urea, Suphala, Nitric Acid, Sulphuric Acid, Argon, Steam Generation, Water Treatment, Methanol, Ammonium Bircarbonate, Carbon Black Sodium Nitrate/Nitrite, Concentrated Nitric Acid, Methylamines, Phos. Acid Dimethyl ether, Supplementary Gassification, NPK Debottlenecking Sulphuric Acid-DCDA Scheme, Phosphoric Acid, Nitric Acid, Ammonium Nitrate Phosphate.



Nitric Acid Plant at Trombay Complex



Urea Plant at Trombay Fertilizer Company

After the planned expansion of Trombay-IV and V and the Thal Project, the total plant nutrient capacity of the RCF will be 11,65,000 tonnes.

The Nitric Acid Plant is the largest single stream plant in India and second largest in the world with adequate in-built measures to curb pollution. With the commissioning of the ANP Plant, a new complex fertilizer with prilled granules has been produced first time in the country. The process adopted in this plant results in substantial saving in import of Sulphur compared to other coventional plants. Apart from this, the co-products Ammonium Nitrate and Chalk have significant industrial use.

The total capital outlay of the Trombay V project is Rs. 170 crores. The project is based on Associated Gas as feed stock and is expected to use 1.3 standard million cubic metres of gas per day from Bombay High.

The Government of India have entrusted to the RCF the Super Fertilizer Project at Thal, about 105 km. from Bombay, in Kulaba District of Maharashtra. This will be the biggest fertilizer plant in India and will be the largest single producer of Urea from any one location in the world. The process plants will be based on Associated Gas from Bombay High and Bassien

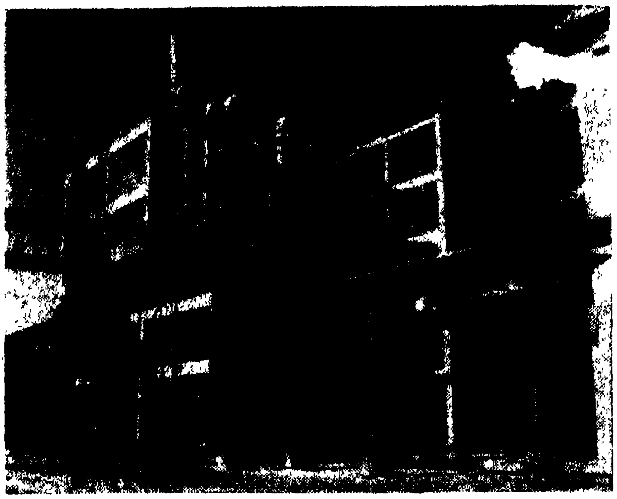
Off Shore gas fields. The project, estimated to cost Rs. 930 crores is to go into production in 1984.

Maximum farmer satisfaction and an integrated network of factory to farm services are the back-bone of the RCF Marketing strategy. The RCF provides a full range of marketing services including sales, fertilizer promotion, agricultural research and free agronomical services.

The following are the important industrial items produced by RCF . Methanol, Mono-Mehtylamine, Di-Methylamine, Tri-Methylamine, T. G. Urea, Ammonium Bicarbonate, Sodium Nitrate, Sodium Nitrite, Nitric Acid Conc. Nitric Acid, Ammonium Nitrate (melt), Argon, Gypsum, Hydrofluro-Silic Acid, Carbon Slurry, Calcium Carbonate, Ammonia.

The R & D Cell of the company has developed the technology and complete know-how for ZIRUM, a Zinc salt of Dimethyl dithiocarbomate based on its product Dimethylamine. This chemical has a great potential for application in the use of pesticide, fungicide and rubber chemical industries.

Over the years the RCF has succeeded in bringing down its own emissions to match the World Standards. At the RCF, total systems approach has been adopted for greater efficiency of environmental management. The RCF's Training Institute provides training for various categories of its employees. The RCF township consists of over 2000 houses which accommodates over 80 per cent of the employees. A fully equipped 30 bed hospital takes care of the health of the employees and their families. There are 4 schools in the township.



Phosphoric Acid Plant at RCF

Round-up

Hindustan Antibiotics

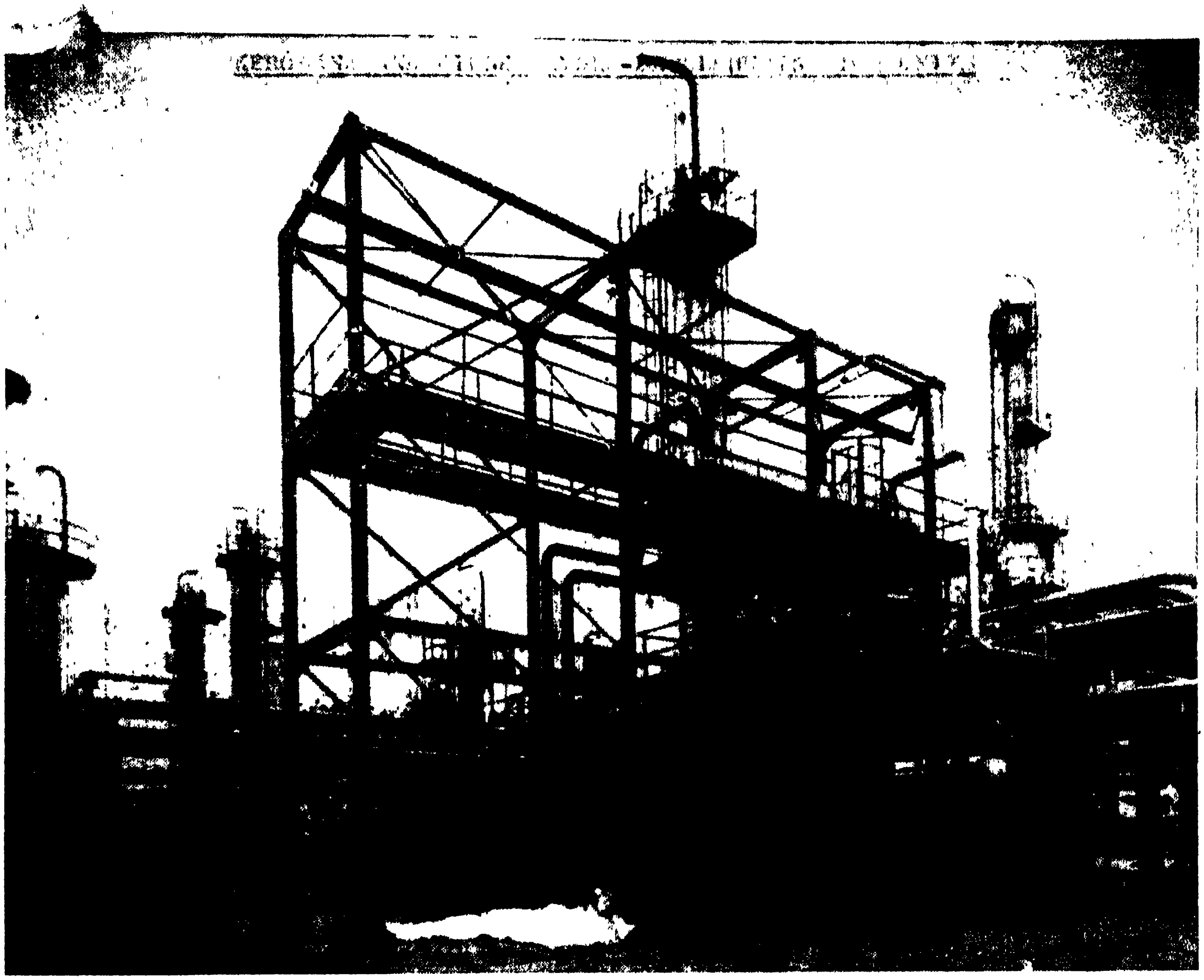
SOON after independence, realising the pressing need for producing pharmaceuticals, particularly antibiotics, the Government of India incorporated Hindustan Antibiotics Ltd' in 1954 getting the technical know with the aid of the WHO and the UNICEF. The plant at Pimpri, near Pune began manufacturing Penicillin. It has grown today into a vast complex supplying a wide array of life saving and life giving medicines. Hindustan Antibiotics has numerous firsts to its credit like its being the first company to manufacture Penicillin, Streptompycin Sulphate, Ampicillin Anhydrous and Gentamicin in India

The range of formulations of Hindustan Antibiotics today further extends to cover plant protection chemicals and drugs for use in the veterinary field. Planned endeavour is being made to isolate compounds for increasing the yield from soil and also to boost-up milk production.

To surge ahead in the field of research in drugs and pharmaceuticals the company established a full-fledged Research and Development Laboratory in 1955. During the last quarter of a century of its functioning, the R & D Laboratory has added numerous laudable achievements to its credit. Perhaps, only Hamycin and Aureofungin would have given it the place of prominence. These two drugs, discovered in this Laboratory have found place in standard textbooks as very effective antifungal Antibiotics in human, veterinary, poultry and plant protection. The R & D Laboratory has innovated numerous other products and processes for development of Antibiotics and Specialities.

The company's produce, bulk and formulations are exposed to rigorous Quality Control tests at every stage of their production to build in the high level of excellence in them that customers world over appreciate.

Massive expansion and diversification schemes, involving investment of Rs. 30 crores are in hand. These include massive increase in the production of life-saving drugs and establishing formulation projects at Nagpur, Goa and Bangalore.



Kerosene and Diesel Hydro-DC Supplies Division Units

Round-up

Madras Refineries

MADRAS Refineries was formed in 1965 as a joint venture with an oil producing company of Iran and oil processing expert—Amoco India forming the partnership with Government of India. The company went on stream in 1969. The plant cost Rs. 43.2 crore.

From 1969-70 to 1979-80, Madras Refineries had a thruput of 26.62 million tonnes and a production of 23.97 million tonnes. Comparing with the All India refinery thruputs of 261.8 million tonnes crude and all India consumption of 241.9 million tonnes of products, it is evident that the MRL shares one-tenth of both refining capacity and product supply. The refinery was consistently surpassing its own production targets in all its products. The total production was also stepped up year by year effecting sizeable savings in its own fuel consumption.

The cumulative profits after adjustment amounted to Rs. 48.55 crore. The refinery started paying dividends to share-holders since 1971-72 and went on progressively raising the dividend until last year when it paid 15 per cent and the cumulative dividend was 117.5 per cent of the paid-up capital.

The last instalment of U.S. Dollar and Rupee loans of $ 22,320,000 and Rs. 20,25,31,000 respectively were already paid off.

Till date the refinery contributed Rs. 1230 crore by way of excise duty and income-tax to central revenue and Rs. 125 crore by way of sales tax to Tamil Nadu Government.

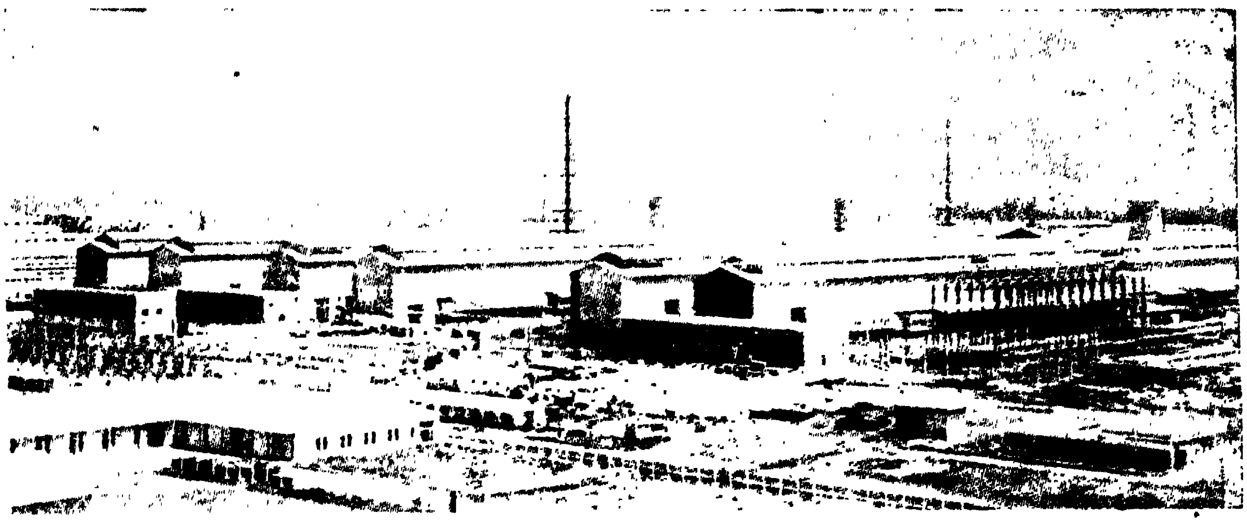
In 1978-79, two chemicals, 17 spare parts, 8 capital equipment were indigenised conserving foreign exchange. The cumulative foreign exchange savings so far work out to Rs 625.68 lakhs for a total number of 1450 items.

From time to time Madras Refineries is exporting thru IOC petroleum products like naphtha, furnace oil and more recently high grade asphalts to Indonesia, Burma, Vietnam, Kuwait, Bangladesh etc. This amount to a total earning of Rs. 81.2 crore in foreign exchange.

During the year 1979-80, the product turnover was valued at Rs. 4,345 million which was Rs. 2,648 million in the preceding year. The gross profit was Rs. 124.18 million as compared to Rs. 106.2 million in the preceding year. The net profit before tax was Rs. 84.79 million which is the highest achieved so far.

The proposal for expanding the refinery from its present 2.8 million tonnes capacity to 5.6 MTPA has already the approval of Government of India and the company. Engineers India Ltd., have been chosen as the prime engineering contractor. All the facilities are expected to be completed by the last quarter of 1984. The investment cost is estimated to be of the order of Rs. 55 crore at 1979 prices.

Also a plant for 20,000 tonnes of paraffin wax per year is being set up.



An aerial view of Korba Smelter Plant

Round-Up

Bharat Aluminium Company

THE first public sector company namely Bharat Aluminium Company Limited, (BALCO), fully owned by the Government of India, was incorporated on 27 November, 1965 with the main object of constructing, operating and managing Aluminium Projects. The authorised capital of the Company is Rs. 175 crores.

Korba Project

The Korba Aluminium Complex of the BALCO is based on bauxite deposits in the Amarkantak and Phutkapahar areas in Madhya Pradesh and on the power from the Madhya Pradesh grid. It has been designed to produce 200,000 TPA of Alumina to feed the Smelter, which has a primary metal capacity of 100,000 TPA with castiig and semis capacities of two lakh TPA.

The Alumina Complex, togther with the bauxite mines, was constructed with the technical collaboration of M/s. Chemokomplex of Hungary. Starting the construction work in October, 1969, the Plant was successfully commissioned in April, 1973.

For the Smelter and Febrication facilities, technical collaboration was provided by M/s. Tsvetmetpromexport of the USSR. The first cell house of the Smelter representing 25,000 tonnes per annum of primary metal capacity was commissioned in 1975 and the second cell in 1977. The other cell houses are yet to be commissioned because of non-availability of power, although they have been ready for operation for nearly 3 years now.

The Alumina Plant and potlines of Korba Smelter continue to be in operation. However, their production is low due to inadequate power supply.

The Properzi Unit, for the fabrication of electrical grade wire rods, is working satisfactorily. A new properzi mill of additional 25,000 TPA capacity, being installed mainly to cater to the growing demand of cable and conductor manufacturers for power transmission was expected to be commissioned by December, 1980.

Work is going on apace in getting all the downstream facilities, such as Extrusion Presses and Rolling Mills ready by the end of 1980.

The Company has also plans on hand for product diversification such as foil, special grades of alumina for non-metallurgical uses, etc.

Due to non-commissioning of full Smelter capacity the BALCO has been exporting calcined alumina, surplus to its reqiurements. The total value of alumina exports from 1974-75 has crossed Rs. 35 crores. For its export performance during 1978-79 and 1979-80, the BALCO has been awarded the 'Top Export Awards' by the Chemicals and Allied products Promotion Council.

East Coast Projects

With a view to exploiting the low deposits of bauxite **in the east coast, a feasibility report** has been prepared for an Alumina-Aluminium Plant in Orissa. with the following rated capacities :

(i) A captive bauxite mine of 2.4 million tonnes p.a.
(ii) An Alumina Plant of 800,000 TPA
(iii) An Aluminium Smelter of 218,000 TPA and
(iv) A captive thermal power plant of 720 MW capacity with necessary infrastructure and allied facilities. The Government have recently sanctioned implementation of this project at an estimated cost of Rs. 1242.4 crores.

Balco received Top export award

For establishing another plant with 600,000—800,000 TPA capacity in Andhra Alumina Plant. Balco's appraisal note on the Feasibility Report, is under preparation for submission to Government. The possibility of putting up aluminium smelting capacity based on this plant, is also likely to be considered in future.

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State Trading Corporation: A Pace Setter in Export Efforts

Dr. S. C. Bhattacharjee*

The State Trading Corporation of India Ltd. was set up in 1956 primarily to deal with the bilateral trading partners of East European countries. The pattern of trading and the growing possibilities of trade with this region necessitated creation of a focal point of trade with the State Trading Organisations in East Europe.

The role for STC as envisaged by the Government was related to the following areas :—

- To help reduce difficulties experienced in expanding trade with centrally planned countries ;
- To help maintain quantitative regulations of imports and some equilibrium of the price of imported commodities and the indigenous products ;
- To provide developmental finance to organise production and boost exports of small scale sector ;
- To check unhealthy competition and undercutting of prices in international markets ;
- To organise integrated development of production, transport and port facilities in respect of bulk commodities ;
- To promote export of non-traditional items and open up new fields of exports of traditional items ;
- To undertake internal trade as and when the situation warrants ;
- To ensure adequate and regular supplies at reasonable and stable prices of essential commodities to meet local demand ;
- To effect exports and imports at more favourable prices through increased bargaining power ;
- To stimulate production of essential agricultural and industrial commodities by means of price and other incentives ;
- To facilitate the imports of goods under foreign aid programmes ;
- To facilitate the implementation of trade agreements and barter deals and
- To act as a vehicle to implement government policies.

Giant Size hands holding consumer goods. A feature in the STC Pavilion at IITF 1979

In the light of changing industrial and trading environment within the country as also the ever-changing international marketing scene, the Corporation at different points of time had to adapt itself to new and emerging situation. Apart from structural changes in the working of the Corporation, there has been marked diversification in the types of products handled for export besides significant variations in the pattern of imports.

Focal Point

STC today serves as a focal point in trading between India and over 100 foreign markets. Its vast and diverse range of commodities and products offered for exports include leatherweare, coffee, tobacco, gramophone records, rice, sports goods, light engineering items, construction materials, army software, tea, jute goods, textiles and readymade garments, processed foods, spices, meat and marine products, castor oil, shellac groundnut extractions etc

STC undertakes import of vital raw materials for industry and consumers, major among which are edible oils, newsprint, cement, rubber, chemicals, drugs, etc.

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*Chairman, the State Trading Corporation of India Ltd

STC's turn-over has increased from a small beginning of Rs. 9 crores in the year of inception to Rs. 1529 crores comprising export turnover of Rs. 636 crores and import turnover of Rs. 884 crores besides domestic trade of Rs. 9 crores during 1979-80. The natural corollary of this growth was the formation of subsidiary Companies for undertaking specific activities in order to offer effective and comprehensive services to its customers.

The Corporation presently has five subsidiaries namely State Chemicals and Pharmaceuticals Corporation of India Limited (CPC), Handicrafts & Handlooms Exports Corporation of India Limited (HHEC), Projects and Equipment Corporation of India Limited (PEC), Cashew Corporation of India Limited (CCI) and Central Cottage Industries Corporation of India Limited (CCIC). The trnover of our Group, including subsidiaries during 1979-80 was Rs. 1752 crores. STC's share in India's trade is about 10 per cent.

Objectives of STC

The original objectives of the Corporation during all this period have not undergone any material change. However, in order to meet the challenges of the coming decade, the Government have further clarified these objectives as a result of a special study conducted by a professional Management Institute. The revised objectives have, thus, envisaged a new role for STC.—

(i) STC will have to undertake a substantial amount of actual trading on their own account including buying, selling, stocking, etc. which would involve undertaking greater risk than in the conventional back-to-back contract entered into by the STC at present.

(ii) It will develop new products and markets for export and initiate action to help strengthen and expand the supply base and infrastructural facilities.

(iii) It will need to organise their operations in such a way that these assist in the attainment of socio-economic objectives such as price stability, increase in employment, stoppage of exploitation by middlemen, etc.

(iv) It will continue to manage canalised items but on a relatively smaller scale than in the past.

(v) It will need to organise itself to monitor certain specified sectors of economy on behalf of Government as its field agencies in the market place and provide timely feed-back for appropriate corrective action.

(vi) It should acquire on the basis of performance a status of leadership within the trading community in the country and a position of strength in the international market.

A model in STC Jabnics

Measures Envisaged to Meet Objectives

In the light of the new role the Corporation has set for itself, STC is continuously reorienting its operations along new lines and directions and the emphasis in the 1980's on the STC's operations would be different from what it has been during the last 25 years. STC is envisaging the following measures to fulfil the objectives set for itself for 1980's :—

Expansion of trading activities : The Central objective of STC would be to organise itself as a leading international house and acquire capability for competitive international trading as has been set forth. From a subsidiary operation, the 'non-canalised' trading activities, primarily exports would be made the major thrust areas of STC's growth. Resource support shall be reoriented to bring these activities to the fore. The first check-point in planning long-term trading activities would be to become a self-supporting organisation based on profits earned in non-canalised competitive trading without dependence on any canalised operation. It will enable the gearing up of the STC's trading activity so that it can take market changes, product changes and the changing need for canalisation or otherwise in its stride.

Selection of business . As concentration is the key to success, STC has undertaken the exercise to narrow down its present range of non-canalised operation, select those where STC could develop in-depth capability of marketing and adequate supply base. The products identified and offering potential for growth where STC would give a major thrust in the coming years are as under :

(i) Processed foods, agricultural commodities, meat and marine products ;

(ii) Leather products and fashion garments ;

(iii) Textiles including readymade garments

(iv) Light engineering goods including electronic products.

Agricultural Commodities Export : In the field of agricultural and allied commodities, at present export markets are located on temporary basis whenever surpluses emerge after satisfying total internal needs. Continuity is an essential attribute of export marketing. In certain agricultural products where yearly variations lead to a swing from shortage to surplus and vice-versa, continuity of export would need organising production specifically for export and insulating the same from variation of domestic demand and supply. Therefore, areas of export development in the agricultural field taken up by STC are fresh fruits and vegetables; meat and livestocks; and selected items of spices and other products. STC is trying to tie-up with importing countries for long-term supply from India and produce the type of vegetables needed by working with State Corporations to organise export production base. In case of meat and livestocks, joint collaborations with long-term buy-back agreements are under negotiation. Towards this end, STC would gear itself to raise livestock for captive supply for meat export and livestock export on long-term basis. In case of spices and other agricultural products, STC is working in conjunction with State/Cooperative undertakings and Commodity Boards to assure exportable quality and supply base.

Manufactured Products Export : While price fluctuations are steep in case of commodities and markets, manufactured product exports show considerable stability in terms of market and price. It is, therefore, the long-term objective of the Corporation to increase export of manufactures. While small-scale sector has been playing a vital role in creating a wider production base for export the extensive dispersal of production facilities catering to the Corporation's manufactured products has led to problems in the maintenance of uniform quality and adherance to delivery schedules. When large orders are generated, supplying uniform quality products and providing assurance for meeting large requirements from a large number of small units become difficult. The Corporation has been able to overcome some of these constraints by organising consortia wherever possible and assisting them in various ways to ensure uniformity in specifications and timely delivery according to the buyer's requirements.

Development Export Ancillary : Careful selection of competent units, assessment of their technical and managerial ability, technical assistance in the upgradation of facilities and process control, supply of critical imported raw materials and financial assistance for capital investment and export production when the same is difficult to get from the normal commercial banking channels are the services which are essential for orderly generation of export production capacity in the small scale sector. In effect the concept of 'manufacturing ancillary' is to be applied for developing 'export ancillary' in the small scale. STC is in the process of organising for such ancillarisation for export on a much wider scale by setting up the necessary technical groups and modifying policies and procedures in this respect.

Facility and Quality Upgradation : STC in its own way has been endeavouring for certain mechanisation of small scale units to meet the rising quality standards for export. Steps have been initiated in respect of processed foods where STC's technical experts visit associates' units and render in-process quality control assistance and suggest measures for improving quality and productivity. Similar assistance for leather products manufactures has been practised for several years. Quality control laboratories established by STC in Delhi, Agra and Madras provided testing facilities for a number of small scale leather goods manufacturers. A R&D Centre for leather garments and Display Centre for textile garments are specially being created to help the manuacturers to keep the design technology continually up-dated.

Capacity Creation for Export : In addition to these efforts, setting up of joint venture production facilities with buy-back arrangement is considered necessary to increase manufactured products export in the long-term. STC, as a long-term policy objective, has decided to undertake capacity creation projects with or without foreign equity participation and also arrange foreign technical know-how and marketing collaboration. STC has a number of ventures under consideration in collaboration with producers/importers from different countries, e.g. Bulgaria, Germany, USA, France, Switzerland, Japan and Hungary.

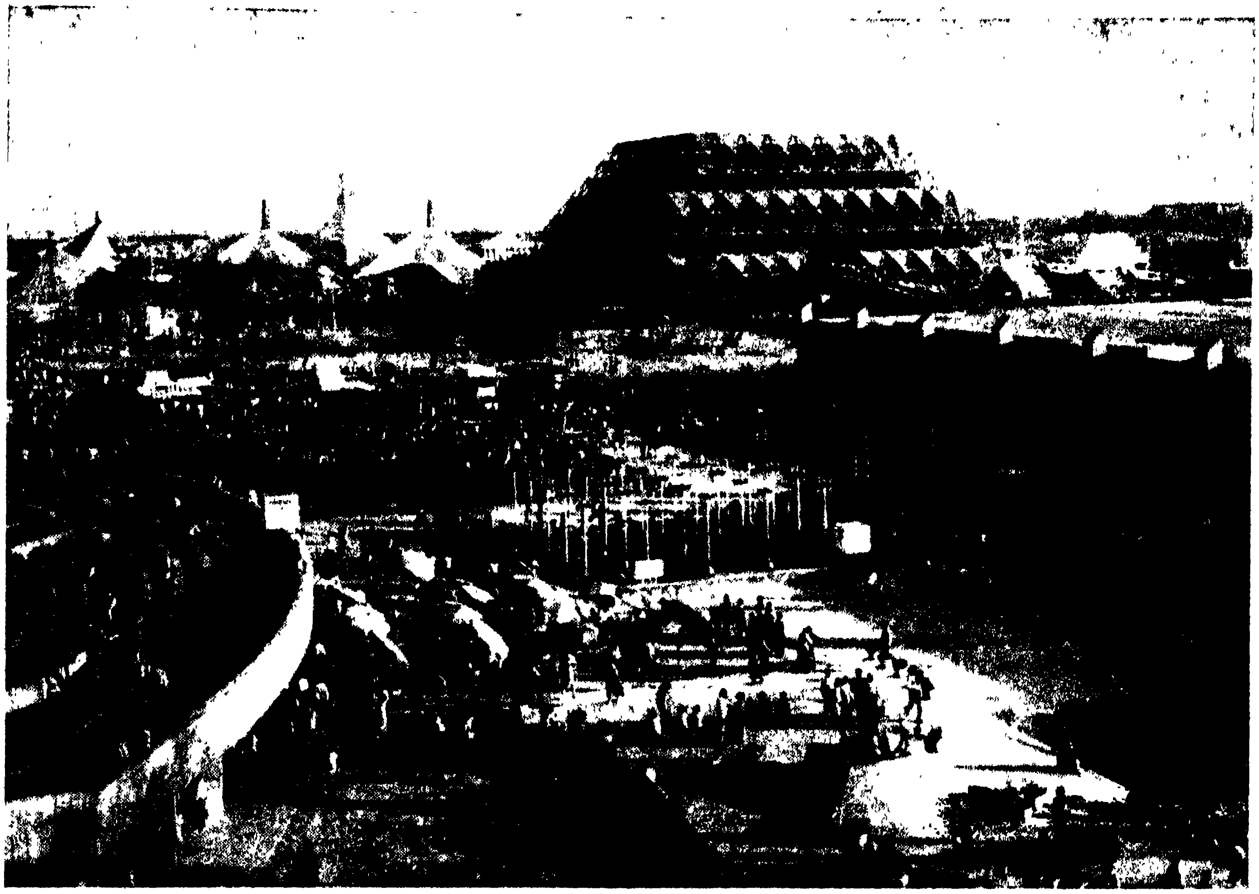
Marketing of manufactured products requires sustained selling activity in the identified markets, which in turn needs setting up of appropriate distrbution channels. Apart from planned utilisation of existing channels in different countries, STC is exploring possibilities of setting up marketing companies abroad, either directly or in joint collaboration as may be needed.

Better Import Management : The coin has also the other side and as the saying goes, a dollar saved is a dollar earned. Over the years, dimension of import management by STC has substantially grown in stature and now encompasses specific areas like creating improvments in facilities for handling of bulk imports like cement, edible oils, besides providing better customer services.

Restructuring of the Organisation : Towards achieving the goal, the Corporation has set for itself during 1980's, the Corporation has been restructured into homogeneous groups to provide indepth attention to its three major fields of activities namely commodity exports, manufactured product exports and import management requiring different types of skill and trading methods. Delegation of powers has been enlarged in order to provide authority with responsibility at various levels for decentralised operational decision making.

Management Service Group : With the object of providing supporting services to the operating divisions—Market Research, Market information, Trade Development, Systems, Procedures, Quality Control Surveillance, Advertising and Sales Promotion—Corporate Planning activities have been stimulated to to provide a package of indepth services to the trading divisions, Board of Directors and to Government (for policy making), among others. As a measure of export promotion, STC participates in a large number of Foreign & Indian Exhibitions.

Achieving a Status of Leadership : With the objectives of STC and the necessary organisation to achieve the same, backed by 25 years of experience, STC would not only retain its present pre-eminent position, but would become a pace-setter in India's export effort. In times to come, STC will become the premier International Trading House of India and take its place amongst world's trading houses with backward and forward integration for supply base and international marketing network. ☐



An aerial view of the Pragati Maidan

Round up

Trade Fair Authority of India

THE Trade Fair Authority of India (TFAI) is the country's national agency for organising and coordinating trade fairs and exhibitions in India and abroad. Set up in March 1977, TFAI has further developed the sprawling exhibition complex at Lal Bahadur Shastri Marg, New Delhi, known as Pragati Maidan, one of the best exhibition complexes in Asia.

For keeping Pragati Maidan active the year round, Trade Fair Authority of India has launched a multi-faceted activity commencing with the inauguration of the National Handloom and Khadi Fair on October 2, 1980. This was the first fair in the series of three specialised commodity fairs successfully organised during October-December 1980. The other two fairs held during November-December 1980, were the National Handicrafts Fair (November 14—December 4) and the National Consumer Goods Fair (December 13—31, 1980).

Pragati Maidan has now become a prestigious trade and cultural centre in the country. Among the main attractions here for the visiting public are : daily cultural programmes in seven different theatres : art film shows screened in Shakuntalam theatre; audio-visual shows in Our India pavilion, shopping arcades in Anarkali and Meena Bazars ; a number of restaurants and kiosks ; youth corner ; Art Gallery ; Crafts Museum in Village Complex. Besides, there is permanent pavilion "Jawaharlal Nehru—His Life and His India". An exclusive Amusement Park for Children has come up with a mini-train, skating rink, racing cars, giant wheel, cheroplane, swings, laughing gallery, amphitheatre etc.

The Authority will organise the India International Trade Fair during November 14—December 4, 1981 in the Pragati Maidan Complex. The Fair will gradually be institutionalised as an annual event.

The TFAI is also planning to organise Six Commodity Fairs at Pragati Maidan during 1981-82 in addition to the India International Trade Fair.

It is also contemplated to set up a permanent Book Pavilion where books published in India will be on permanent display.

It is proposed to set up a National Centre with various facilities in Pragati Maidan. The Centre will be a meeting place for people concerned with international trade.

Trade Fair Authority of India participated in 17 International Trade Fairs/Indian exhibitions during 1977-78, 11 trade fairs/Indian exhibitions during 1978-79 and 14 International trade fairs/Indian exhibitions during 1979-80 and 13 International trade fairs/Indian exhibitions during 1980-81. The emphasis in the displays arranged at the various events has been on projecting industrial image and technological competence of modern India. The business finalised on the spot at the events held in 1977-78 totalled Rs. 1588.04 lakh, while the business negotiated stood at Rs. 2484.12 lakh. During 1978-79, the business finalised was of the order of Rs. 2168.58 lakh and the anticipated business as a result of negotiations was worth Rs. 3172.64 lakh. During 1979-80, the business finalised was of the order of Rs. 2042.97 lakh and the anticipated business as a result of negotiations was worth Rs. 163.34 lakh. During 1980-81, the business finalised was of the order of 1318.06 lakh and the anticipated business as a result of negotiations was worth Rs. 2017.50 lakh.

The TFAI extends various facilities, including release of foreign exchange, to Indian Companies which participate in fairs abroad. The Fair Authority will participate in many International fairs/Indian exhibitions abroad during 1981-82. TFAI is contemplating to set up trade centres/showrooms in selected centres abroad with a view to project India's export potential. TFAI also helps in organising promotion of Indian products through departmental stores abroad. It organised a major promotion in West Germany through the Chain Stores of M|s. KARSTADT, the leading Store there, during May, 1978. Similar store promotions are being planned in various other countries.

TFAI also organises commercial publicity through the media of the printed word and publishes journals in English and Hindi for the benefit of the trading community at home and abroad.

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Public Sector Must Do Better

Baldeo Sahai

WITH AN INVESTMENT of over Rs. 15,000 crore in the public sector, each one of us has a stake of about Rs. 250 in its success. According to the latest report of the Bureau of Public Enterprises (BPE), in 1978-79 the public sector showed a net loss of Rs. 32 crore as against Rs. 91 crore in the previous year.

Soon after the present government took over, Prime Minister Indira Gandhi appointed a high-power Committee under the Chairmanship of Shri Mohd Fazal, Member Planning Commission, to review the working of individual public enterprises and suggest methods to improve the performance of each. This exercise has already started showing results, especially in the steel and power sectors. A number of enterprises under the Heavy Industries Department have achieved more than 100 per cent of production target in November 1980.

Profits and Losses

The public sector for the first time showed a net profit of Rs. 18 crore in the year 1972-73. It had steadiy improved performance since, recording in subsequent years net profits of Rs. 64 crore, Rs. 184 crore, Rs. 129 crore and Rs. 184 crore. BPE should have analysed why it slipped again in the following two years incurring losses of Rs. 91 crore and Rs. 32 crore.

The coal companies doubled their losses in one year because, it is said, there were heavy rains in September|October 1978 submerging quarries and equipment. The Eastern Coalfields alone lost 94 underground working districts, seven opencast pits and all the 30 manual quarries. A fresh wage agreement came into force from January 1979 and cost the companies an additional Rs. 115 crore. It is really surprising that as the wages of coalmine workers have gone up, output per manshift has gone down, and while the cost of coal has increased, profitability has declined. More than mere rains seems to be responsible for poor showing by the coal companies.

What then are the reasons for losses in the public sector over the past two years ? In these years there was a sharp slump in the morale of public enterprises managers. The most important reason for this slump was the constant criticism of public sector at the highest level. One prime minister warned in March 1979 that if central enterprises did not show profit 'heads will roll'. Soon after, another prime minister threatened to hand over losing concerns to private management, ignoring the fact that due to different reasons even private companies incurred losses and some were nursed back to health by the public sector management.

How to Make It Work ?

Public sector management, in addition, is faced with peculiar problems. The most important problem is of procedural nature and could be set right straightaway. This pertains to decision-making. Most public enterprises are run as statutory corporations or as companies registered under the Indian Companies Act, 1956. In the early stages of public sector, government appreciated that commercial undertakings should be kept free from the trammels of fundamental rules and bureaucratic red tapeism. In practice, however, most of these undertakings even now are run as government departments. A project report prepared by a group of experts in a public undertaking passes through the portals of authority in not less than two years and generally takes longer in being finalised. This leads to time over-runs and cost over-runs.

The Public Sector executives should be spared the ordeal of constant questioning by a multiplicity of authorities. In fact the public sector is too public as the private sector is too private.

A time-bound programme must be devised to process such reports expeditiously. The controlling ministry should prepare a proforma seeking exhaustive information about a proposed project. Copies of the proposal should be supplied to all concerned and a month's time allotted within which each could seek clarifications and additional information. By the end of the second month a round table conference of all involved organisations should be held to discuss the proposal and take a decision, either way. Allowing another two months for departmental discussions, a four to six month period should be fixed to finally decide the matter.

The responsibility for putting up the plant on ground within a specified period should be squarely placed on the chief executive of the company. Necessary authority for day-to-day work must be delegated to him who, in turn, should pass it on to his juniors. Modern techniques like CPM and PERT are now well-known and should be strictly followed. It has been estimated by the chief executive of National Thermal Power Corporation, now also Secretary

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* Public Relations Adviser, Standing Conference of Public Enterprises (SCOPE)

Ministry of Energy, Irrigation and Coal, that one day delay in commissioning a big power project costs the country Rs. 20 crore - one crore as electricity charges and the rest as loss in industrial production. The executives who complete the job on the dot or earlier, should be rewarded and those who do not, punished. The reward should be worthwhile and punishment deterrent.

The public sector executives should be spared the ordeal of constant questioing by a multiplicity of authorities. In fact the public sector is too public as the private sector is too private. In addition to questions from the controlling ministry, public investment board, BPE and the planning commission there are questions and short notice debates in Parliament and other forums. Parliament as the supreme national legislative body is well within its right to probe into the functioning of public enterprises, but the questions should be only on policy matters and in the national interest

Public Sector Personnel

There should be a well-conceived personnel policy for the public sector employees. In the early stage managers for these enterprises were drafted from government. At one time, a minister was also the Chairman of National Industrial Development Corporation. Secretaries to the Government of India were chairmen of a number of corporations like Hindustan Steel and National Coal Development Corporation. It was natural for these personages, honourable exceptions apart, to import their bureaucratic culture into these commerecial concerns.

Later, a management pool was constituted to recruit top personnel. There was only one empanelment and the pool was replaced by a public sector enterprises board (PSEB). Even today there is no management development policy, nor a public sector service on the lines of other central services. Consequently, there is little security and even a chairman could be conveniently asked to quit if the minister incharge did not like his face. The solution lies in giving PSEB the status of the Union Public Sevice Commission.

All ab initio employees must be given thorough training in the rationale and philosophy of public sector as well as in their own disciplines. Public enterprises should have introductory pamphlets to be handed over to each new entrant serving the purpose of a warm handshake. It should preferably be in two parts : one giving the rationale and philosophy of the public sector, and two, giving the history, highlights, objectives and thrust of the enterprise concerned. In addition, there should be short-term refresher courses for on-the-job personnel. This job can be undertaken only by a national academy of management. The idea has been discussed at length at high level conferences but the academy continues to elude.

Contribution to Development

There is a lot of confusion about the social objectives a public enterprise is supposed to discharge. This raises the question of the rationale of public sector. If the rationale is to develop basic industries, remove regional imbalances, discourage private monopolies, raise living standards and bring about harmonious management-worker relations, then the performance of public sector cannot be judged at par with that of private industry. V. B. Ramanadham, a UN Consultant, recommends that "the objectives of individual public enterprises must be specified, appropriate machinery to specify these objectives must be devised, and major problems encountered in the processes must be identified and resolved." These objectives, he adds, must include some obligations to the society, where the enterprise is set up, and also to the nation as a whole. But, as pointed out by another UN consultant, Foud Sherif, "an open-ended obligation could be as eroding of profit making as excessive obligations prematurely imposed."

> *There is a lot of confusion about the social objectives a public enterprise is supposed to discharge. Care must be taken to see that inewciency and mismanagement are not perpetuated which discharging social obligations*

Care therefore must be taken that inefficiency and mismanagement is not perpetuated in the garb of discharging social obligations. Since public sector managers are not supposed to be actuated by motives of personal gains, nor do they lose if the company goes bankrupt, it is essential that the commercial nature of public enterprises is kept inviolate and they yield adequate return on investment. If the objectives of each public enterprise are clearly defined and its contribution to development is shown separate from the commercial balance sheet, that will help in conducting proper evaluation fo social gains on the one hand and commercial viability on the other.

With the objectives of public sector is related the question of its diversification and expansion. Presently, only 89 public enterprises are engaged in production and marketing. As many as 40 come under the category of service organisations of different types. The policy of taking over sick concerns needs to be discouraged. The emphasis should shift from opening new enterprises—ten are already under construction—to consolidating what is there, and making it work profitably.

The public sector has played an important role in building economic infrastructure of the country and it can play a still bigger role. In 1978-79, foreign exchange earnings of central enterprises rose by 17.2 per cent reaching the figure of Rs. 1,834 crore ; turnover of 159 operating units showed a growth of 5.1 per cent and profitability excluding coal companies rose from 8.61 per cent in 1977 to 9.84 per cent in the following year. It is too late in the day to wish it away or to think of handing it over to the private sector. We must make it work.

Public sector does not work in isolation. There are linkages and crosslinkages and each link must be strengthened. Prominent among the actors are government, parliamentarians and public enterprise managers. The responsibility for the losses or profits has to be shared equally by all the main actors. It is only when the entire cast plays its part properly and adequately that the public sector will do better.

How Mixed is the Indian Economy ?

M. R. Kulkarni*

INDIA is a unique case of state planning in a mixed economy. Whereas the role of the public sector is accepted as a matter of public policy, it is also affirmed that private enterprise has a positive, even expanding part to play in the country's development. Even so the relative roles of the two sectors have been a subject of keen controversy. Some two decades ago, when the role of the public sector in the process of modernisation of the economy was being hotly debated, Prof. Galbraith observed that even in the haven of free-enterprise, the USA, as much as 20 per cent of the domestic product originated in the public sector as compared with less than half as much in India. The issue was generating so much passion not because India was anywhere near a socialist society but because of the apprehension that a policy of deliberate expansion of public sector with a view of capturing the commanding heights of the economy would eventually spell ruin to free private enterprise.

Table I

Share (Per Cent) of Public Sector in Net Domestic Product

(At current prices)

Industry	1960-61	1965-66	1970-71	1975-76	1977-78
1. Agriculture & Allied	1.14	1.57	1.45	1.88	2.06
2. Mining & Quarrying	11.94	14.93	23.85	77.17	68.10
3. Manufacturing	4.40	7.83	10.95	14.98	14.79
4. Construction	6.88	7.55	7.18	9.45	10.20
5. Electricity, gas & Water Supply	66.18	72.22	83.33	85.69	87.37
6. Transport, storage & Communication	64.93	65.39	60.29	57.54	62.32
7. Trade- Hotels & Restaurants	0.39	0.99	2.16	4.85	5.84
8. Banking & Insurance	38.75	44.80	65.53	76.70	80.12
9. Others	40.03	46.69	53.72	57.91	55.62
10. Total	10.66	13.19	14.51	18.30	18.85

The public Vs private sector controversy may no more be charged with the same emotional intensity but it still remains a sensitive subject. As a result the underlying issues are not often objectively analysed whether by the partisans or the critics of the public sector. For instance, a general feeling is sought to be created that the public sector had indiscriminately expanded in all directions.

Share in Domestic Product

But it may come as a surprise to many that the share of the public sector in total domestic product has not even doubled during the last two decades. The public sector accounted for nearly 11 per cent of the net domestic product in 1960-61. In 1977-78 this proportion was no more than 19 per cent. (See Table 1) However, what is significant is not so much the total size of the public sector as its share in different sectors of the economy. Obviously it was not the official policy to extend the public sector in any and every direction. As the Industrial Policy Resolution of 1956 stated : "The adoption of the socialist pattern of society as the national objective, as well as the need for planned and rapid development, require that all industries of basic and strategic importance, or in the nature of public utility services, should be in the public sector. Other industries which are essential and require investment on a scale which only the State, in present circumstances, could provide, have also to be in the public sector. The state has, therefore, to assume direct responsibility for the future development of industries over a wider areas".

It must therefore be expected that the public sector is more dominant in certain areas and less so and even non-existent in certain others. For example, the large agricultural and allied activities in the country-side (accounting for close to half the national product) is almost totally untouched by the public sector. The public sector was not significant in mining also till, in 1973, the coal mining industry was nationalised. Coal mining being the most important mining activity in the country today, the State now accounts for two-thirds of the income originating in the mining sector.

The wholesale and retail trade and the catering industry are almost entirely in private hands. So also the construction activity. On the contrary, electricity, gas and water supply and railways, which are in the nature of public utilities, have traditionally been state-owned.

The real controversy seems to centre round the control and ownership of the modern sectors in industry and finance, particularly manufacturing. The private enterprise in the country looks upon the public sector as a rival and even as a menace not because it is going too far and too fast in all kinds of economic activities but because it is encroaching on what has been traditionally considered the exclusive preserve of free enterprise namely, manufacturing. In spite of the big lead taken by the Government in setting up steel plants, heavy engineering and heavy electrical equipment manufacturing, fertilizer factories, refineries and so on, the share of the public sector in value added in manufacturing has not exceeded 15 per cent. The entire village and small scale sector in industry is owned by private individuals or enterprises actively encouraged and assisted by government. This sector accounts for about 50 per cent of the total manufacturing output. The output of this sector is estimated to be Rs. 32,800 crores in 1979-80. The turn-over of the entire private corporate manufacturing sector in the same year may be estimated to be Rs.26,700 crores. The output of manufacturing enterprises of the Central government in 1978-79 was Rs. 12,137 crores. Allowing for a 20 per cent rise in prices and a marginal increase in output, industrial production in 1979-80 was stagnant as compared with that in 1978-79. It is unlikely that the turn-over of the central government manufacturing enterprises exceeded Rs. 15,000 crores in 1979-80. There are manufacturing units in the States sector, but their contribution is negligible.

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*Deputy Adviser, Planning Commission.

"Commanding Heights"

It may be, however, more relevant to discuss the share of the Government in core sectors like energy steel, petroleum refining, fertilizers, papers, cement, etc. The share of the public sector in the installed capacity of selected industries is shown in Table 2.

It is clear from the table that the public sector is in command in almost all the strategic sectors of the economy. 85 per cent of the installed capacity for power generation is in the public sector. The predominance of the state sector in energy is further underlined by the fact that in coal and oil production, and petroleum refining government enjoys a near monopoly. More than 80 per cent of the steel capacity of the integrated steel plants is in public sector. The only integrated steel plant in the private sector is the Tata Iron & Steel with a capacity of two million tonnes. In the production of fertilisers, paper and paper board and newsprint also, the public sector accounts for the bulk of the capacity. In sugar production it is the cooperative sector that controls more than half the output. In case of non-ferrous metals, cement and cotton textiles the role of the State is still relatively modest but is expected to expand in the coming years in view of the projected plans and programmes in these sectors.

Employment

Employment, like relative shares in domestic product, can be another indicator of the relative importance of the public sector in different economic activities. With the expansion of the public sector the employment in this sector was also increased. From 7.0 million in 1961 it has increased to 14.7 million in 1978. (Table 3) Correspondingly the share of the public sector employment in the total employment in the orgainsed sector rose from 59 per cent in 1961 to 67.5 per cent in 1978. One of the sectors in which public sector employment has increased very fast is mining, mainly on account of nationalisation of the coal industry. The public sector share in agriculture and manufacturing also doubled between 1961 and 1978. In most of the other sectors such as electricity, construction, transport and services, the State had accounted for bulk of the employment in the past and continues to do so at present. The only areas where the origanised private sector has a dominant role in providing employment are manufacturing and wholesale and retail trade.

It must, however, be remembered that these data leave out a large unorganised sector in agriculture, cottage and village industries and trade, transport and services. Of, the total labour force of 273 million in 1978 the organised public and private sectors employed 21.84 million or just 8 per cent and the share of the public sector was only a little over 5 per cent.

Table 2

Share of Public Sector Installed Capacity as on 1-4-1980.

	Unit	Total	Public Sector	Share [illegible]
1	2	3	4	5
1. Electricity°	(MW)	26175	22375	85.0
2. Coal (including lignite)	mt	106.3	104.0	98.0
3. Refining (crude throughput)	mt	27.47	27.41	98.0
4. Steel(ingots)£	m. tonnes	11.4	9.4	82.5
5. Alloy & Special Steel	'000 t.	800	180	22.5
6. Aluminium	'000 t.	331	100	33.1
7. Cement	mt.	24.3	3.5	14.0
8. Nitrogenous Fertiliser	'000 t.	4696	3425@	73.0
7. Phosphatic Fertiliser	'000 t.	1341	860@	64.0
10. Paper & Paper Board	'000 t.	1540	1465	95.0
11. Newsprint	'000 t.	75	75	100.0
12. Sugar	m. tonnes	6.0	3.5@	58.0
13. Electronics*	Rs. crores	655	239	36.0

°As on 1-4-1978.
£ Integrated plants only.
* Output during the year 1979-80
@ including cooperative sector.

Table 3

Employment in Public Sector in Major Industries and Services

('000 Nos)

Industries	At the end of the period			
	1961	1966	1971	1978
1. Agriculture, hunting, etc.	180 (21.18)	231 (20.8)	281 (25.4)	627 (41.4)
2. Mining & Quarrying	129 (19.0)	171 (25.9)	254 (42.8)	762 (85.9)
3. Manufacturing	369 (10.89)	693 (15.5)	862 (18.0)	1384 (24.4)
4. Electricity, Gas & Water	224 (84.85)	332 (88.5)	455 (90.8)	621 (95.0)
5. Construction	603 (71.53)	740 (77.6)	895 (84.6)	1013 (92.5)
6. Wholesale & retail trade, etc.	94 (37.01)	164 (32.4)	367 (55.5)	97 (25.8)
7. Transport Storage & Communications	1724 (95.57)	2109 (94.5)	2238 (96.0)	2561 (97.3,
8. Financing insurance, real estates, etc.	—		—	631 (76.5)
9. Community Social & personal Services	3727 (93.01)	5102 (85.7)	574 (84.8)	
Total :	7050 (58.31)	9542 (58.7)	11098 (62.2)	14727 (67.5)
Total organised sector (Public and Private)	12,360 (100.0)	16,257 (100.0)	17,832 (100.0)	21,832 (100.00)

Note :—The data are not comparable over time as industry classification was changed after 1974; Figures in brackets are percentage to total (Public & Private Sector)

Thus the overall position is that the public sector accounts for less than 20 per cent of the domestic product and employs 5 per cent of the labour force. The public sector cannot be said to be looming too large across the national economy.

Investment

Investment is often considered a more reliable index of the relative share of the public and private sectors in the economy. At the end of 1978-79 the following were the investments made by the public authorities in major publilc sector undertakings.

	Rs. Crores	
1. Central Government non-departmental undertakings	15602	
2. Railways	6186	
3. State Electricity Boards	7000	(Estimated)
4. Irrigation Projects (since the First Five Year Plan)	8744	
5. State Road Transport Undertakings	1044	
Total	38576	

The investment in the State Electricity Boards by the end of 1977-78 was Rs. 6252 crores. The investment as at the end of 1978-79 is not available, it is estimated tentatively to be around Rs. 7000 crores. Apart from the undertakings indicated above there are other Central and State Government Undertakings in which also significant investment has been made. These include Post and Telegraphs and other departmental undertakings of the Central Government, nationalised banks and Reserve Bank of India and the State Government industrial enterprises. No precise estimates of investment in these undertakings are available. It may, however, be indicated that the order of investment in these undertakings may be around Rs. 1500 crores making a total investment of Rs. 40,000 crores in the Central and State Undertakings.

It is not, however, possible to say how this investment compares with the corresponding private investment. In the following paragraphs some effort is made to indicate a relative picture wherever possible.

Manufacturing

The largest chunk of investment in the public sector is in the Central Government enterprises. They also employed nearly 19 lakh persons. As indicated above, the total investment in the Central Government non-departmental enterprises was Rs. 15,602 crores. A comparable estimate for the private corporate manufacturing sector is not available.

However, some information is available from the Annual Survey of Industries for the year 1977-78. The ASI does not cover the entire manufacturing sector as it is limited only to the units registered under the Factories Act. However, the relative shares emerging from the Survey may be of some interest. Of the total productive capital employed in the ASI sector, nearly 59 per cent was in the public sector, 6 per cent in the joint sector and 35 per cent in the private sector. Employment-wise and also in terms of gross output the position was rather reverse. Only 24 per cent of the employment and 22 per cent of the output was in the public sector while more than 70 per cent of both employment and output originated in the private sector.

It is in the corporate industrial sector that the public and private sectors may be said to meet their match. And the real controversy also centres round it. The ASI data for 1977-78 are presented in Table 4. The share of the Government companies and corporations emerges as very modest in comparison with that of the non-Government Companies. The former was less than 35 per cent in productive capital and 16 per cent in employment and less than 12 per cent in output.

Banking and Insurance

The Reserve Bank of India, which is the Central bank of the country, was originally set up as a government bank. The entry of the public sector in commercial banking came about when the Imperial Bank of India was nationalised and converted into the State Bank of India nearly three decades ago. The next major takeover of private banks was in 1969 when 14 leading private commercial banks were nationalised. As a result the bulk of the banking operations was brought under State ownership. The objective of controlling the commanding heights of the economy was further promoted when, in April 1980, six more banks were nationalised. The number of public sector banks thus increased to 28 and the share of the public sector banks in total deposits and outstanding credits rose to nearly 91 per cent. Of the total deposits of Rs. 33,220 crores the public sector accounted for Rs. 30,220 and of the outstanding credit of Rs. 22,000 crores, its share was over Rs. 20,000 crores. At the end of 1978 the total assets of all the banks in the country added upto Rs. 33.398 crores or 84 per cent.

Table 4

Public and Private Corporate Sector Shares in Manufacturing: 1977-78

Organisation	Factories (number)	Fixed capital (Rs. lakhs)	Productive capital (Rs. lakhs)	Employees (number)	Gross Output (Rs. lakhs)
1. Public Limited company	5974 (37.13)	764996 (53.86)	1164663 (58.26)	2771858 (64.60)	2017900 (71.40)
2. Private Limited company	8579 (53.33)	89548 (6.30)	146190 (7.31)	846624 (19.73)	476434 (16.85)
3. Private Corporate Sector (1+2) . . .	14553 (90.46)	854544 (60.16)	1310853 (65.57)	3618482 (84.33)	2494334 (88.25)
4. Public Corporations	1535 (9.54)	565794 (39.83)	687994 (34.41)	671702 (15.66)	331774 (11.75)
5. Corporate Sector	16088 (100.00)	1420338 (100.00)	1998847 (100.00)	4290184 (100.00)	2826308 (100.00)

(Figures in brackets show percentage to total)

Both life and general insurance, after their nationalisation in 1956 and 1972 respectively, are wholly government owned.

Transport

In the transport economy of the country Indian railways play a predominant role. They are one of the largest systems in the world and the largest in Asia. Among state-owned railways the Indian railways are second only to the Russian railways.

The total investment in the railway system has increased from Rs. 855 crores in 1950-51 to Rs. 6,186 crores in 1978-79. The employment has increased in the meanwhile from over 9 lakhs in 17.5 lakhs. The predominance of the railways in the transport economy of the country can be gauged from the fact that, despite the decline in their share over the years, the railways still account for over two-thirds of the goods traffic and two-fifths of the passenger traffic. Even in road transport, the state has emerged as the major partner in passenger haulage. The number of buses owned by State Road Transport Undertakings has increased from 8,000 or 17 per cent of the total in 1956 to 62,000 or 55.5 per cent in 1978-79. They also employed 4.62 lakh persons in 1978-79.

Air transport both domestic and international is totally in the public sector while in shipping (tonnage) the share of the public sector is around 60 per cent.

The Prospect

The contours of the emerging public sector in the national economy can be regarded as fairly clearly defined. The major thrust in the expansion of the public sector as dictated by the logic of the national socio-economic policy has been broadly achieved. An occasional takeover of a privately owned unit either on account of strategic considerations or, more often, to nurse a sick unit back to health would make little difference to the public sector profile that has emerged over the last two decades. In fact, the major consideration governing the future expansion of the public sector would be the need for installing fresh capacities in expanding sectors like steel, non-ferrous metals, fertilisers, petroleum refining, machinery and equipment, cement and paper. With the accepted policy to encourage private enterprise in a large area comprising the vast unorganised pursuits of agriculture and village and cottage industry, distributive trade and services as well as organised modern industry and wholesale trade and transportion, it is unlikely that the public-private mix will undergo significant change in the coming years. However, the public sector may be expected to enter a phase of consolidation and improved efficiency so that its contribution to national and sectoral incomes and output will go up commensurate with the resources and efforts going into it. ☐

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Revamping Public Sector

P. D. Shrimali*

THE Public Sector in India has come to assume a significant place in the economy. From a low figure of 27 enterprises with an investment of some Rs. 29 crores in 1951-51 to some 500 enterprises with an investment of Rs. 15,602 crores in 1978-79 is a big leap forward. The area covered by the public sector has also spread out to encompass not only the traditional fields like transport, communications, irrigation. public utilities etc. but also banking and finance. petroleum metallurgy, mining machine-making,drugs, hotels and even some consumer goods. As a source of employment and output too, it has gained a significant place; some 18.71 lakh persons are employed in public sector enterprises and nearly one fifth of the net output is accounted for by it. The public sector has in fact, been exercising a determining role, a role of the pace-setter for the economy. Growth or decline, acceleration or deceleration in the pace of growth in the economy today are very much influenced by the investment, employment and production activity undertaken in the public sector. If India has emerged as an important industrial country in the world and gained a certain degree of self-reliance, it is due to the rapid building up of the public sector and its expansion and diversification during the last thirty years The private sector too owes considerably to it for its own growth and profitability over the period.

Nehru Strategy

Credit for such spectacular growth of the Public Sector in India goes to Shri Jawaharlal Nehru, who is truly the architect of Modern India. It was as a part of his vision and strategy that a planned programme of accelerated development based on rapid creation of a technologically progressive and strong infrastructure and heavy capital goods industry was adopted. This planned programme of development was to be spearheaded by the public sector, because in the peculiarly adverse conditions prevailing in India, it was necessary for the State to assume the role of entrepreneur. The private sector, which is driven by the narrow motive of personal and quick profits, had neither the capacity nor the propensity to enter the fields of economic activity involving massive capital investments and long-gestation periods. But, besides this deep grasp of the development processes and requirements, Shri Nehru had a social vision too. He did not want India to take the path of development already treaded by the advanced capitalist countries, which resulted in the growth of powerful private monopolies, concentration of economic power in the hands of tiny groups of exploiters, emergence of bellicose armament kings and gross economic and social inequalities. He wanted India to strike out a new course of development for itself which would lead it to a new socio-economic order called "Socialist Pattern of Society". In Shri Nehru's scheme of things, thus, public sector was conceived both as an instrument for rapid development of productive forces, as well as for ushering the country in the era of 'Socialist Pattern of Society." Public sector had, therefore, to be rapidly built up so that it acquired 'commanding position' in the economy and all fields of activities that were of 'strategic' importance were brought under its firm control and leadership. It has to go on expanding so as to be able to control the private sector at important points and 'determine the pattern of production, distribution and investment.'

Virile Instrument of Growth

During his life time, Shri Nehru succeeded in carrying the country through three successive plans aimed at building infrastructure, developing heavy industry and laying the base for attainment of self-reliance through import substitution. Public Sector grew up really as a virile instrument of growth in this period, though the period throughout was characterised by severe programmatic debates and struggles against forces of conservatism and status quo, the forces either had their understanding rooted in classical economics or represented the vested interest group of big business that feared the public sector might get beyond the scope indicated for it in the 'Bombay Plan' of 1944.

The Public Sector fulfilled its economic role, in spite of such odds, but failed in the fulfilment of its social role. Big business houses continued to grow into still more powerful private monopolies. Income disparities kept growing. Labour-management relations failed to improve and public sector did not show itself as a better employer. The country was in no way nearer the goal of the 'Socialist pattern of Society'.

Profitability

The effectiveness of any undertaking or sector may be judged either on the basis of its profitability calculated in terms of direct returns on capital employed in that undertaking or sector or on the basis of the social gains flowing from it. The latter, however, are not easily quantifiable since they are widely dispersed over the economy and several of them are qualitative in character. Still, the effectiveness of the public sector in India as the builder, promoter and sustainer of growth in the economy is best demonstrated by the economy's achievements in the 'Nehru era'. Shri V. A. Pai Panandikar, Director, Policy Planning Centre, New Delhi, in a study of the Indian Economy for the period 1950-76 published in 1978 makes the following observations about the 'Nehru Period :—

> "......At constant prices of 1948-49, during Jawaharlal Nehru's thirteen years as Prime Minister, the average rate of growth for the period as a whole was 3.5 per cent .... the industrial index went up by an average of 11 per cent for the period as a whole. This period certainly marks one of the most sustained rates of growth during the history

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of Indian Industrial progress............In the Nehru period, one finds that the aggregate growth (in agricultural production) for the period was about 43 per cent over the previous (1949-50) base period, giving an average rate of growth of about three per cent per year. In other words, the agricultural production was generally on the upswing during the Nehru years .... wholesale prices, which provide a good index of inflation, moved up by only 21 points over the period between 1950-51 and 1963-64. Most important of all, the savings rate moved up from 5.7 per cent of the national income in 1950-51 to 11.2 per cent in 1963-64 and the investment rate moved up from 5.6 per cent in 1950-51 to a record 14.5 per cent by 1963-64.......... In fundamental and essential terms, therefore, the Nehru era was a period of significant discontinuity when contrasted with the pre-independence period. The foundation of India's economic regeneration were thus firmly laid.......... overall economic performance is unparalleled in the economic history of India."

Restoring Nehru Perspective

After Shri Nehru's passing away from the scene, more concerted attacks and propaganda barrage have been directed against the public sector, attempts have been continuously made to reverse the Nehru strategy and derail the economy from the path indicated by it. During the period 1969-75, attempt was made to restore the Nehru Perspective. But from 1976 onwards the onslaught was renewed and has since then been increasing. Allocation of investment funds for the public sector have not grown in real terms as they should have in keeping with the requirements of a large and growing economy like that of ours. Attempts have been and are being made to dislodge it from the commanding height it had attained. Threats of denationalisation and reprivatisation have been constantly held out. Non-stop campign is being run that public sector must be kept confined to infrastructural sphere only and must not be allowed to diversify its activity beyond it. The industrial policy of 1956 has now been abandoned and replaced by a new one which abandons the entire Nehruvian concept of 'stratagically important' and 'core' sectors. Some collaboration agreements with the Multinationals have also adversely affected the public enterprises and prejudiced their further growth. Exposure of the public sector to a system of sub-contracting of work and contracting for supplies of variety of material has given rise to corrupt practices, pilferage loot, sabotage, slow downs and substandard production performance to the advantage of the private sector at public sector's expense. In fact what is happening in the country is nothing short of an economic *coup-de-etat*, about which, the present author had warned several years back in his paper published in *Mainstream*, Vol. XIII, No. 11 & 12, November 16, 1974, and indicated that "mass' sanctions have, however, to be simultaneously forced against any attempt at reprivatisation of any public undertakings, as was done in Japan during 1880's under the garb of which public assets built up through public money were handed over to friends, relations or paymasters of certain bureaucrats at dirt cheap prices."

Profitability

As for the profitability of the public sector, according to the 1978-79 data, of some 159 public commercial enterprises (including textiles and insurance) which are in operation, 88 earned profits, 2 broke even, and 69 sustained loss. Profits (before tax) amounted to Rs. 193 crores which gave 7.6 per cent rate of return of capital employed. In 1976-77, the profits were at the peak level of Rs. 412 crores and gave a return of 9.4 per cent. The nationalised textile sector, which comprised of sick units prior to takeover, have also broken even and started showing profits. Bulk of the campaign aimed at running down public sector is based on its low-profitability. But, it has to be noted that, the sphere of activity to which the Public Sector is currently confined is predominantly infrastructural in nature and as such highly capital intensive and low profit yielding. The adverse environment, fluctuating policies, sticky administered prices, rising costs, power and transport shortages and labour problems are additional problems that public sector has been facing and which have depressed their profitability While Private Sector has been found to have increasing profits even with lower production and sales, the public enterprises have often been found to have earned less profits inspite of increased sales and production. Because of pricing policy constraints on public sector, considerable part of profitability of the sector is passed on to private sector in the form of concealed subsidies and the latter cashes them as it is engaged in the production of final products.

Quite a large number of public sector enterprises are today reported to be topless. Appointments in key managerial positions have been held back for reasons best known to the government. The existing management is mostly bureaucratic and routinist in outlook and neither professionally trained nor committed to the ideals of public sector. Due to severe constraints, public sector enterprises have not been able to diversify into vertically or horizontally inter-connected branches of activity; there is also lack of coordination among them.

Return to Nehruvian Perspective

What the country, therefore, needs urgently is a bold return to Nehruvian perspective and strategy. The Public Sector needs revamping. The Industrial Policy Statement rightly observes that it is today 'nobody's sector'. Its management needs to be restructured and each enterprise needs to be placed under the management of a Board wherein professionally trained cadre, workers' elected representatives and Parliaments' representatives (representing public or the consumers) sit and work together in the best interests of the society. To begin with young cadres of the Indian Economic Service and Indian Statistical Service be assigned responsibilities of managing the public enterprises. But it is time now that an Indian Business Management Service is initiated so that the Public Sector has its independent professionally trained cadre. An integrated approach to the question of enterprise's autonomy and its answerability to the Parliament needs to be evolved. There should be strict adherence to the principle of 'Swadeshi' in respect of all such material and machinery which is produced and is available within the country and priority should be given to inter-enterprise transactions within the Public Sector for the purpose of supplies of materials, machinery and intermediate products. □

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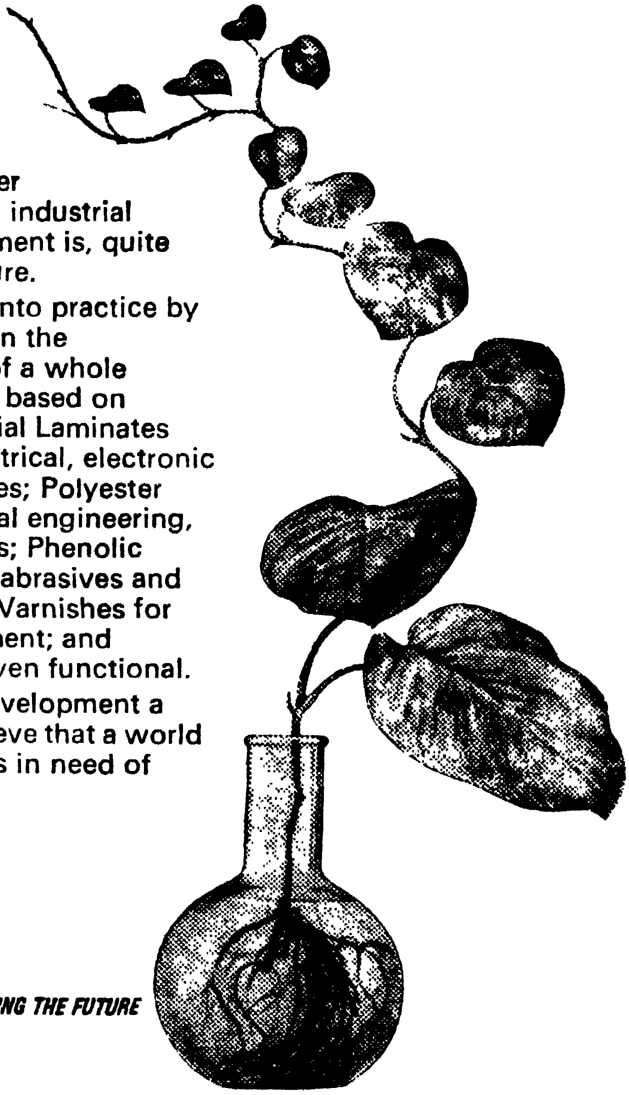

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Performance of Public Sector Transport Undertakings

Dr. Mahesh Chandra Chaturvedi*

CONTINUING losses in public sector road transport have been subjected to criticism from all quarters. The total amount of such losses was estimated at Rs. 44 crores in 1976-77, Rs. 130 crores in 1977-78 and Rs. 56 crores in 1978-79. The number of these undertakings was 46 in 1978-79. The performance data of 33 undertakings are available in the reports of the Central Institute of Road Transport for three years from 1976-77 to 1978-79. Out of these 22 were in red, ranging from 1.95 paise per kilometre (Karnataka SRTC) to 134.04 paise per kilometre (Delhi Transport Undertaking) during the year 1978-79.

In a road transport undertaking profits directly depend upon its operational efficiency which in turn is a function of revenue and cost of operation. In this article problems relating to revenue have been analysed. There are different sources of revenue and these can be grouped under two heads : (a) Operating Revenue and (b) Non-operating Revenue.

Operating Revenue

Income received from transportation of passengers and incidental sources constitutes operating revenue. Generally more than 95 per cent of this revenue accrues from the following sources :

(i) Sale of passenger tickets ;
(ii) Passenger luggage ;
(iii) Casual contract service ;
(iv) Parcel service ;
(v) Postal mail service ;
(vi) Out-agency receipts ; and
(vii) Revenue from taxies, air-conditioned coaches, reservation etc.

Income from the sale of passenger tickets is the main source of operating revenue and the other sources indicated above are incidental and related to conveyance of passengers.

Non-operating Revenue

Income from sources not directly related to transportation of passengers constitutes non-operating revenue. It consists of advertising, rent, interest and miscellaneous receipts. The miscellaneous receipts accrue from the sale of scrap material, profit on sale of fully depreciated vehicles, receipts from publications lost property and work done for out-side parties and excess receipts.

Earning per Kilometre

The earning per kilometre is the ratio of total earnings to total effective kilometres. It is a useful ratio to indicate the earning potential of a route/depot/division/organisation. It is related to the carrying capacity of the buses, fare structure and marketing efficiency.

The earnings per kilometre of the state road transport undertakings for 1978-79 are given in the table on next page. They varied from 119.27 paise (Pepsu RTC) to 260 paise (Himachal RTC). The undertakings showing high rate of earnings were : Himachal RTC (260 paise), Pandiyan R/W TCL (249 paise), and Cheran TCL (245 paise). It ranged from 200 paise to 236 paise in case of Andhra Pradesh SRTC, Cholan TCL, Karnataka SRTC, Kattabomman TCL, Kerala SRTC, Maharashtra SRTC, Nagaland ST, Pallavan TCL, Tripura RTC and Uttar Pradesh SRTC. It was low (beow 200 paise) in the case of Bihar SRTC, CIDCO, Gujarat SRTC, Jammu & Kashmir RTC, Haryana SRTC, North Bengal STC, Orissa SRTC, PEPSU, Punjab ST and Rajasthan SRTC. It may be seen that there is great variation in earnings per kilometre among the undertakings. The performance of Companies stood better as compared to other undertakings in this respect. There is great scope for improvement in this respect in almost all the state road transport undertakings.

The daily earnings per bus on road of the state road transport undertakings have been shown in the table. They varied from Rs. 253 (Jammu and Kashmir RTC) to Rs. 765 (Pandiyan R/W TCL) during the year 1978-79. The undertakings showing high rate of daily earnings per bus on road were Pandiyan R/W TCL (Rs. 765), Kattabomman TCL (Rs. 761), Cholan R/W TCL (Rs. 749), and Pallavan TCL (Rs. 748). They ranged from Rs. 511 to Rs. 665 in the case of Andhra Pradesh SRTC, Cheran TCL, CIDCO, Gujarat SRTC, Karnataka SRTC, Kerala SRTC and Maharashtra SRTC and from Rs. 398 to Rs. 474 in the case of Haryana State Transport, North Bengal STC, Rajasthan SRTC and Uttar Pradesh SRTC. The daily earnings were low (below Rs. 377) in the case of Himachal RTC, Jammu and Kashmir RTC, Nagaland ST, Orissa SRTC, Pepsu RTC, Punjab ST and Tripura RTC. The existence of wide variations in daily earnings per bus on road indicates that there is ample scope for improvement in earnings in case of most of the undertakings. The performance of the companies stood better as compared to other undertakings in this respect.

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Table : Revenue analysis of State Road Transport Undertakings for the year 1978-79

S. No.	Name of undertaking	Earnings per Kilometre (paise)	Daily Earnings per Bus (Rs.)	Earnings per Seat km. (paise)
	CORPORATIONS			
1.	Andhra Pradesh SRTC .	220.14	665	4.49
2.	Bihar SRTC . . .	182.91	398	.52
3.	Gujarat SRTC . .	178.60	511	31
4.	Himachal RTC . .	260.00	376	.71
5.	Jammu & Kashmir RTC	194.38	253	5.40
6.	Karnataka SRTC . .	232.33	605	4.90
7.	Kerala SRTC . .	222.64	599	4.28
8	Maharashtra SRTC .	222.33	555	4.47
9.	North Bengal STC .	169.00	416	3.38
10	Orissa SRTC . .	183.00	373	3.66
11.	Pepsu RTC . . .	119.27	269	2.21
12.	Rajasthan SRTC . .	199.00	474	3.69
13.	Tripura RTC. . .	219.04	363	4.80
14.	Uttar Pradesh SRTC	204.00	451	4.00
	DEPARTMENTAL UNDETAKINGS			
15.	State Transport Haryana	184.20	469	3.50
16.	Nagaland State Transport	235.66	293	5.75
17.	State Transport Punjab .	169.00	390	3.19
	COMPANIES			
18.	Cheran TCL . . .	245.00	646	4.80
19.	Cholan R/W Corpn. Ltd.	218.00	749	3.82
20.	CIDCO	140.24	568	3.42
21.	Kattabomman TCL .	232.40	761	4.01
22.	Pallavan TCL (Dist.) .	230.87	748	41.12
23.	Pandiyan R/W Corpn. Ltd.	249.00	765	3.83

Earning per seat kilometre

The earnings per seat kilometre is a useful ratio indicating the revenue realised per seat kilometre offered. It is calculated as follows :

$$\frac{\text{Total earnings during the year}}{\text{Total effective kms. during the year} \times \text{Average carrying capacity of the buses during the year}}$$

The earnings per seat kilometre of the state road transport undertakings for 1978-79 have also been shown in the table. They varied from 2.21 paise (Pepsu) to 5.75 paise (Nagaland ST). They were high in the case of Nagaland ST (5.75 paise), Himachal RTC (5.71 paise) and Jammu & Kashmir RTC (5.40 paise). They ranged from 4.00 paise to 4.92 paise in the case of Andhra Pradesh SRTC, Cheran TCL, Karnataka SRTC, Kattabomman TCL, Kerala SRTC, Maharashtra SRTC, Pallavan TCL, Tripura RTC and Uttar Pradesh SRTC. They were low (below 3.83 paise) in case of Bihar SRTC, Cholan R/W TCL, CIDCO, Gujarat SRTC, Haryana ST, North Bengal STC, Orissa SRTC, Pandiyan R/W TCL, Pepsu, Punjab ST and Rajasthan SRTC. This indicates that there is enough scope for improvement in this respect in the case of all the undertakings. For improving this ratio, stress should be laid on improvement of earnings.

Factors responsible for low rate of earnings

Various factors responsible for low rate of earnings are summarised as under :

(1) Fare Structure : A review of fare structure of the state road transport undertakings indicates that there is great variation in rates of fare charged by them. The fare charged for ordinary services varied from 3.25 paise per kilometre (Punjab ST) to 10.00 paise per kilometre (Nagaland ST) during the year 1978-79. The rates of fare are low in case of most of the undertakings. Under the provisions of the Motor Vehicles Act, 1939, the fare structure is determined by the State Governments. Whenever there is increase in the cost of operation, a proposal for increase in fare is made to the State Government. The process of revision of fare is so lengthy and cumbersome that it takes too long and by the time sanction for revision of fare is received, necessity of further increase in fare is felt because of further increase in the cost of operation during the intervening period.

(ii) Nationalisation of Uneconomic Routes : After independence it has been the policy of the Government to maintain the trend for increasing state ownership of passenger road transport services in the country. There has been prolific increase in the number of routes due to political pressures and other reasons. Routes have been nationalised without proper appraisal. Some of the routes nationalised in rural and backward areas are unprofitable. Transport being a basic necessity for the development of an area, it has to be provided even if its operation may be uneconomic.

(iii) Operation of city bus transport services : The city bus transport services are running into losses in almost all the state road transport undertakings. These services are provided because of persistent public demand and instructions from the Government. The situation in regard to losses exists because of low fares, requirements of larger number of buses to clear the city traffic, employment of extra crew to run the buses, greater wear and tear of vehicles due to traffic congestions, ticketless travel and concession to students etc. Moreover, sometimes large number of buses are hijacked/damaged by the students whenever there is some conflict between the students and the crew.

(iv) Defective Scheduling : Due to unscientific planning and defective scheduling, city and mofussil services are overlapping on certain routes. Buses move over-crowded sometimes on certain routes and empty at other times because of lack of proper adjustment in scheduling. The occupation ratio is low in case of most of the undertakings and there is need for rationalisation of routes, schedules and bus stops etc. for making proper vehicle utilisation.

(v) Pilferage of Revenue : Pilferage of revenue is the most important problem in case of all the State road transport undertakings. The extent of loss through pilferage of revenue is estimated at 8 to 15 per cent of the revenue. The estimated total revenue of the state road transport undertakings was about Rs. 1000 crores in 1978-79. The amount of pilferage of revenue calculated on this figure, would range from Rs. 80 crores to Rs. 150 crores which is quite a substantial amount. The pilferage done by the conductors falls under the following categories :--

(a) Wayside booking and non-issue of tickets but collection of fare from the passengers ;

(b) Re-issue of used tickets in case of denomination ticket system ;

(c) Manipulation of entries in case of tickets in which particulars are to be inserted;

(d) Manipulation in opening and closing numbers of tickets and misappropriation of amount; and

(e) Use of forged tickets/tickets alleged to have been lost.

There is need to make systematic study in case of each undertaking to know exactly the extent, causes, methods of pilferage of revenue and devise measures to check this evil.

(vi) Curtailment of Trips . The percentage of curtailment of bus trips has shown increasing trend in case of most of the state road transport undertakings. When a trip is curtailed, it is a direct loss to the undertaking. The increase in the number of trips curtailed indicates inadequacy of workshop facilities, shortage of technical staff, shortage of tyres, tubes and spare parts, absenteeism of the crew and poor management.

(vii) Illegal operations by the private operators: Unauthorised operation of private vehicles is prevalent specially in States where cent per cent nationalisation has not taken place. Vehicles meant to transport goods carry passengers unauthorisedly and private registered vehicles are used like taxies or as contract carriages. Sometimes, contract carriage vehicles have been illegally operated as stage carriages by taking passengers en-route, thereby infringing the conditions of the contract carriage permits. The undertakings are losing heavily on this account and there is need to take effective steps to check this evil.

Suggestions

According to the Motor Vehicles Act, 1939 and Rules framed thereunder, the matter of revision of fares for the road transport passengers comes within the purview of the State Governments. The Act should be amended so as to exempt the public sector road transport undertakings from this restriction. These undertakings should themselves periodically review the fare structure in relation to rise in cost of operation due to various factors. While fixing the fare it should be borne in mind that fares cover costs and a reasonable return on capital invested.

On the basis of revenue contributed by each route the routes should be classified in three categories—A, B and C. The routes where the average earnings are more than total costs (variable cost plus fixed cost) are classified as 'A' class. The routes where the average earnings are equal to or less than total costs but are more than the variable costs are classified as 'B' class. The routes where average earnings are less than even the variable costs are classified as 'C' class; these routes are uneconomic and are directly responsible for losses. The operations should be periodically reviewed on the above lines and efforts made to increase operations on 'A' class routes and to convert 'B' class routes into 'A' class routes. The operations on 'C' class routes should be minimised and every effort should be made to convert them into 'B' class routes.

Bus scheduling is an art of drawing out maximum earnings by proper vehicle utilisation. To optimise earnings the routes should be as direct as possible. Origin and destination surveys should be carried out regularly for assessing travel desires of the public and traffic potential of the route so as to locate sectors where the demand is more or less than the service being offered. Scheduling of trips should be adjusted to the traffic load at different times. The travel timings and halts on the route should be planned in such a way that it provides maximum comfort and convenience to the travelling public. For checking the evil of pilferage of revenue there is need to give attention to the selection, induction, training and promotion of conductors. It has been observed that by rewarding good and honest conductors, a significant improvement can be made in checking pilferage of revenue. The collection bonus scheme on the pattern of **Pallavan TCL** may usefully be employed in other road transport undertakings. The strength of inspecting and checking staff should be increased. Shri M. K. Joseph, erstwhile General Manager, Kerala SRTC has suggested a tentative formula for fixing the strength of inspectorial staff on the basis of $N = K/D \times P$. Here 'N' stands for the number of inspectors. 'K' for scheduled kilometres 'D' for distance normally covered by an inspector and 'P' for the percentage of check required. An analysis of tripwise earnings of each bus should be made regularly and where there is fall in revenue those areas should be checked thoroughly, Leakage is more likely to take place in rural and far-flung areas than on the main routes and frequent inspection of such routes should be ensured.

Travelling without proper tickets should be made an offence punishable with fine or imprisonment or both as has already been done in Rajasthan. Action should invariably be taken for prosecution of passengers found guilty. They should not be let off by merely charging penalty. Strict disciplinary action should be taken against any conductor found indulging in malpractice.

Quick action should be taken to get private vehicles operating in nationalised routes confiscated. It should be the duty of inspection and checking staff to detect such cases of unauthorised operations. Every effort should be made by the management to improve fleet utilisation ratio and daily vehicle utilisation rate. Buses with larger seating capacity should be employed for operations by the state road transport undertakings.

The percentage of non operating revenue in road transport undertakings is very small, to below 5 per cent. There is need for concerted efforts to increase revenue from advertisements, scrap sales, rents etc. The following measures are suggested for increasing the non operating revenue of the state road transport undertakings:

(a) The facility of providing advertisement on buses, bus stands etc. should be fully explored.

(b) Effort should be made to charge adequately from the parties who establish canteens, bookstalls and shops at bus stands.

(c) Whenever there are surplus cash balances, the same may be invested profitably for whatever period these may not be needed.

(d) Scrap and obsolete materials should be disposed of at regular intervals.

It is hoped that the undertakings can improve their earnings substantially by adopting the above mentioned measures. Increased earnings will help them in covering increased cost of operation and enough surplus will be available to improve their financial viability. □

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The State Farms

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Smt. Auna R. Malhotra*

CENTRAL STATE FARMS were established starting from 1956. The first one at Suratgarh, on 30,000 acres was started from 5th August, 1956. The farm was assisted by Russian gift of agricultural machinery. The Farm was intended to demonstrate the advantages of mechanised farming and was to serve as a model. It was also expected to demonstrate that agriculture on scientific lines could enable substantial production on marginal lands like deserts, shrub forest etc. It was felt that these Central State Farms could assist in the building up of buffer stock of foodgrains.

Encouraged by the success achieved at the Central State Farm (CSF) Suratgarh, the Government of India decided to set up more Farms as a part of the Grow More Food Campaign in the country and an agreement was also reached with the Government of USSR, whereunder the latter agreed to gift the machinery and equipment for five additional farms, to be set up in Orissa, Haryana, Punjab, Karnataka and Kerala.

With the introduction of high yielding varieties of cereals and fibre crops, hybrids of millets, maize etc., it was felt that these farms could play an extremely important role in the production of seeds of foodgrains, fibre crops etc. In the year 1969, the Government of India decided that instead of farms being managed as departmental undertakings they should be run by a commercial undertaking in the public sector. It is, thus, that the State Farms Corporation of India, a wholly owned by the Government of India undertaking, came into existence in 1969 to manage the erstwhile Central State Farms and the new farms established at Chengam (Tamil Nadu), Kokilabari in Assam, Bahraich in U. P. The Corporation was also entrusted with the management of two more farms in Mizoram which was to serve as steps towards development of these areas and it took up a reclamation-cum-farm project at Rae Bareli.

Foodgrains Production—Sole Objective

The rigid objective for setting up these large Farms was to produce foodgrains, fibre crops, plantation crops etc. after reclamation development and improvement of the lands. The initial concept of CSF, therefore, was one of the introduction of modern farm management practices specially mechanised farming to utilise vast tracts of uncultivated lands in semi-arid or shrub forest areas. The first farm at Suratgarh was spread over an area of 12000 hec. and was set up with farm machinery gifted by USSR. It was possible over a period of time to convert this desert area into a green belt producing vitally important inputs like seeds of various crops.

As of today the total area in possession at the various farms with the Corporation is 36671 hec. of which the culturable area is 27115 hec. Currently, irrigation is available for 11177 hec. and it has been possible to achieve a cropping intensity of 93 per cent.

With the introduction of high yielding varieties of cereals and other crops the State farms can play an extremely important role in the production of these crops. They also serve as models demonstrating the advantages of mechanised farming.

Ever since its inception the Corporation has sought to bring these arid or shrub forest areas into shape for cultivation of seeds. This meant suitable land reclamation, land development, land shaping, laying of irrigation channels, drainage systems etc. In the process, the Corporation has built up an expertise in sound farm management practices. One of the other objectives which had been thought of was to take up animal husbandry activity like breeding of cattle, poultry and sheep etc. Later it was decided to concentrate only on crop husbandry as specialised agencies were set up by the Goverment of India to deal with animal husbandry aspects.

With the Farm machinery and equipment available with it, in addition to meeting its own requirements for cultivation of its farms, the Corporation has been making available this machinery on custom hiring basis to farmers, and in the years to come it proposed to strengthen this activity. The Corporation made a small beginning in the reclamation and land development in command area of Chambal Project and it is likely that this activity would be strengthened and expanded.

An Ambitious Programme

In the mid-seventies, the Government of India took up an ambitious programme for ensuring availability of good quality seeds of a variety of crops at reasonable prices. Seed, as would be appreciated, is an extremely important input and it may not be wrong to say that a total transformation of agricultural scene in the country in the last two decades has been primarily due to the introduction of hybrid and high yielding varieties of seeds. The introduction of short duration highly fertilizer responsive dwarf varieties of cereals like wheat and paddy has completely changed the picture of cultivation and agriculture practices leading to a more optimum application of inputs, raising of a second crop where single crop was grown during the year and simultaneously achieving higher order of productivity. This is reflected in significant increases and production of many of the cereals and fibre crops like cotton. The Agricultural Universities and the Agriculture Research Institutes have made unceasing efforts towards evolution of better improved varieties and thus as we go along one of the primary requirements of modern agriculture would be to carry the fruits of research to the millions of farmers by making available seeds of these improved varieties at reasonable prices. This would be a continuous phenomenon.

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*Chairman, State Farms Corporation of India.

Accent on More Production of Oilseeds

With the country reaching almost a stage of self-sufficiency in cereal production much greater emphasis is now being laid on increasing the production of pulses and oil-seeds. The universities and research institutions are on the job and it is likely that improved varieties of oil-seeds, pulses would also be released in the years to come. This would, then call for a systematic attempt to produce high quality seeds of these improved varieties and for taking it to the doors of the farmers. And sound seed production system evolves a chain of activities like production of breeder seeds, foundation seeds and ultimately certified seeds for raising commercial crops. The SFCI has an important role to play in this entire system and has already been geared up for production of foundation and certified seeds. This is reflected in the growth of production of seeds from 1.34 lakhs qtls. in 1974-75 to 2.36 lakhs qtls. in 1978-79. This will be further consolidated and strengthened and the Corporation proposes to produce over 4 lakhs quintals of foundation and certified seeds by the end of Sixth Five Year Plan representig a fairly significant proportion of the quantities of seeds produced in the country.

Side by side with production of foodgrains or oilseeds or fibre crops a much greater emphasis is likely to be laid in the coming years on production of vegetables and fruits. The Govt. of India have contemplated a massive increase in the extension of areas under orchards of improved and high yielding fruit trees crops. This would mean identification of mother trees in addition to evolving improved and high yielding varieties of trees crops. Orchards have fairly long gestation period like the annual crops and the production and distribution of saplings, grafts of higher yielding fruit tree crops is not so easily amenable to quick returns and therefore the public sector with accent on service has to play an important role. The Corporation, therefore, intends to concentrate on production of seedling material for raising orchards and plantation. It has already concentrated on production of seedlings of hybrid coconut tree crops at its Aralam Farm. This will be expanded to other areas during Sixth Plan.

Diversification

It has also intended to diversify cultivation of other commercial crops which have export potenital. It is being envisaged that the Corporation could with the resources at its command play an important role in the export of agricultural and agro-processed commodities, for exports of such commodities would have to increase substantially as a part of maximising India's contribution in international trade.

Energy crisis is something which everyone is confronted with. The massive animal husbandry programme, has to be supported by efficient fodder and forage production programme. Shortage of good fodder is also being felt as its price is escalating. Fuel is another area where shortages are experienced in the country. The Central and State Governments in recognition of this have taken to a very ambitious programme to meet the fuel and fodder crisis which is being experienced, and may get accentuated in the years to come without a planned effort towards maximising availability of agro-based fuel products. In addition to the retention of forest as it exists new afforestation on the marginal lands have been taken up, and will continue to grow. Improved tree crops which can play an important role in meeting the fuel and fodder shortage like Leucaena and Sesbania have been introduced and the area brought under these trees expanded through socio-forestry programmes. The Corporation has commenced the production of seeds of these tree crops and will undertake raising of saplings for distribution under this socio-forestry programme.

The Corporation's farms are, therefore, being consolidated to play an integral role in the country's agricultural development programmes. It is being planned that there will be continuous review of the activities of the Corporation so that the role it is expected to play will be discharged in an efficient way and objectives are achieved with cost effectiveness.☐

A Model of Modern Farming

Like any other progressive Punjab farmer, retired armymen turned growers in Khokhar Fauji village of Gurdaspur are taking up modern farming.

Since its adoption by Indian Farmers Fertiliser Cooperative Limited (IFFCO), the village's fertiliser consumption has increased manifold. The farmers now sow seeds and apply fertilisers by drilling method, technique considered far better than the traditional broadcasting method. Likewise, there has been a significant change in the use of farm implements.

Consequently, the farmers harvested 26 quintals of paddy an acre this year, compared to last year's yield of 16 quintals.

Mr. H. S. Bhatia, Area Manager (IFFCO), says that armymen-farmers are more amenable to technical advice than other growers.

While many village cooperatives in the country are going into the red, the farmers of Khokhar Fauji have turned their cooperative from a loss incurring body into one earning profit.

Central Heavy Engineering Units Capacity Utilisation

Prof. M. Gangadhara Rao & Dr. B. Ramakrishna Rao*

THE latest survey on the working of Central Government Undertakings presented to the Parliament reveals that the heavy engineering undertakings have sustained a net loss of Rs. 46.20 crores in 1977-78 and Rs. 38.94 crores in 1978-79. In view of substantial investment required as well as its crucial importance to the nation, the heavy engineering industry in our country is mainly confined to the public sector. Among the 11 undertakings, in heavy engineering group, only four are earning profits and the rest are accumulating deficits due to perennial losses incurred as each year and surpassing even their paid-up capital. As a matter of fact, the incidence of poor financial results is disturbing as it comes in a year when similar undertakings in private sector are earning handsome profits.

The principal factor responsible for this poor state of affairs seems to be low capacity utilisation in these units. As an instance, the number of running units where the incidence of capacity utilisation is less than 75 per cent is reported to be 10 in 1978-79 as against only seven in 1977-78. While in 1977-78, six out of 16 manufacturing units had reported less than 50 per cent utilisation, in 1978-79, eight units out of 17 reported such poor performance. It is interesting to note that undertakings which are working at low level of their capacity have been incurring losses while those operating at a higher level of their capacity have been making profits. Thus, Bharat Heavy Electricals, Tungabhadra Steel Products, and Triveni Structurals Ltd., which are working at a high level of capacity are earnings profits while concerns like Bharat Heavy Plate and Vessels, Heavy Engineering Corporation, Jessop & Co., Mining and Allied Machinery Corporation etc., have been incurring losses on account of their poor capacity utilisation. It is distressing to note that all the three reporting units of Heavy Engineering Corporation, the biggest heavy engineering complex next to Bharat Heavy Electricals, showed capacity utilisation of under 30 per cent during the two years 1977-79 (See Table).

Factors for low capacity utilisation

The factors acting as operating constraints for low capacity utilisation in these undertakings are both exogenous and endogenous in nature. The former includes constraints in the form of load shedding, recurring power restrictions imposed by various State Electricity Boards, infrastructural bottlenecks such as non-availability of railway wagons, raw materials, transport facilities and poor order book position etc., while the latter comprise of poor industrial relations, poor maintenance of plant and machinery, technological deficiencies, product mix profile etc.

> *The principal factor responsible for this poor state of affairs seemed to be low capacity utilisation in heavy engineering undertakings.*

It may be pointed out that the low capaciy utilisation in units like Bridge and Roof Co., Heavy Engineering Corporation, Jessop & Co. is mainly on account of constraints in the form of chronic power shortages, severe loadshedding and restrictions on power supply. In Mining and Allied Machinery Corporation, the low capacity utilisation is due to poor order book position. Deferment of mining equipment order from Coal India affected adversely the Company's operation during 1978-79. In Bharat Heavy Plate and Vessels, a major cause for underutilisation is the uncertain and falling demand for capital equipment which is in the manufacturing profile of the company. The Company has to compete with fabricators in the private sector whose capital investment and overheads are very low in regard to smaller equipment. Technological deficiencies in the form of low technology, poor maintenance, breakdown of equipment act as major constraints in the way of effective capacity utilisation in the case of Braithwaite and Co. Ltd. and Burn Standard Ltd. Poor industrial relations and non-availability of input materials from customers as free issues have also hampered the production programmes in Braithwaite and Co., and Heavy Engineering Corporation in 1978-79.

Efficient Operation Needed

In a capital-scarce economy like India, production performance of public enterprises in terms of the optimum utilisation of resources in the form of men, material, and machinery is of paramount importance. The success of public sector heavy engineering units and the real benefits to the national economy from it greatly depend on the efficient operation of the manufacturing sector and its ability to use as fully as possible the capacities created. While it is true that profit is not the sole criterion to judge public sector

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*Professor, and Reader, Dept. of Commerce & Management Studies respectively in Andhra University, Waltair.

Table : Relationship between capacity utilisation and Profitability performance in Central Heavy Engineering Units during 1976-79

Name of the Undertaking	Capacity Utilisation (%)			Net Profit/Loss (Rs. in Lakhs.)		
	76-77	77-78	78-79	76-77	77-78	78-79
1. Bharat Heavy Electricals, Bhopal	106	89	91	2812	2552	2515
2. Bharat Heavy Electricals, Jhansi	—	85	102			
3. Bharat Heavy Electricals, Hardwar	71	115	94			
4. Bharat Heavy Electricals, Hyderabad	83	94	78			
5. Bharat Heavy Electricals, Tiruchy	108	107	101			
6. Bharat Heavy Electricals, CFFP, (Castings)	—	—	36			
7. Braithwaite & Co (India), Ltd.	49	32	45	(—)15	(—)194	(—)298
8. Bharat Heavy Plates & Vessels Ltd.	37	47	28	(—)66	(—)60	(—)538
9. Burn Standard Ltd., (Wagons)	91	86	62	(—)237	(—)923	(—)970
10. Bridge & Roof Co (Structurals)	—	71	49	17	2	5
11. Heavy Engineering Corpn. HMBP	37	19	28	326	(—)3026	(—)274
12. Heavy Engineering Corpn. FFP	10	17	25			
13. Heavy Engineering Corpn. HMTP	24	6	9			
14 Mining & Allied Machinery Corpn.	49	21	24	35	(—)2491	(—)1006
15. Jessop & Co	93	94	70	65	(—)502	(—)90
16. Triveni Structurals	73	82	93	7	3	17
17. Tungabhadra Steel Products	83	134	126	11	19	11

performance, but in view of substantial investment being made in these units each year as well as their paramount importance to the nation, the optimum utilisation of productive resources in these units is a matter of great importance to the national economy. The under-utilisation of production capacity will not only block up scarce and vital resources but also create contagious repercussions on linked industries and result in heavy avoidable imports. Further, in view of the necessity for these units to prove that they are run on sound lines and contribute not only to the economic development but also to the national exchequer by way of reasonable returns, they have to review many of their existing policies including those relating to capacity utilisation. There is at present an imperative and crying necessity to optimise the industrial productivity in the face of severe and chronic shortages persisting all over the country. As public undertakings are run with public money, they should bring to the exchequer a reasonable return on their investment. A time-bound plan for optimising capacity utilisation, maximizing production and reducing production costs is a must for improving the overall efficiency of these units. ☐

H.M.T's Gift to Small-Scale Sector

T. K. N. Nair*

HINDUSTAN MACHINE TOOLS has given another product knowhow to Qetcos—a medium scale machine tool unit in the cooperative sector in Kerala. Qetcos (Quilon Engineers and Technicians Cooperative Society) formed in 1972 had its first collaboration agreement with H.M.T. in 1973 for the production of "LT 20" lathe and the factory was inaugurated in March, 1975. The second agreement recently signed was for the transfer of technology of Qetcos to produce "II 20" a low-priced precision centre lathe. According to Shri B. Ramachandra, Chairman and Managing Director of H.M.T., this tie-up between HMT and Qetcos is the only one of its kind in India. A noteworthy feature of the agreement is that it was for the first time that HMT had given the right to manufacture one of its products to another Indian manufacturer. It was also for the first time that a cooperative society of engineers and technicians had successfully taken up the production of such precision-oriented products like machine tools in our country. According to the agreement, HMT will not charge any technical collaboration fee, as Qetcos is in the coperative sector. They will charge only a nominal royalty. HMT will also undertake the marketing of Qetcos products.

This knowhow transfer has been described as HMT's latest gift to the small-scale sector, with a view to making available its reputed expertise to accelerate the country's Rural Industrial Development Programme.

Production at Qetcos with about 200 employees has substantially increased to 170 machines a year in the last five years from 56 machines in the first year. Production so far is around Rs. 3 crores, Qetcos has successfully exported machines to Denmark. Federal German Republic, Dubai, Sri Lanka, Zambia. Kenya, Indonesia, Philippines Mauritius and Tanzania. Total value of exports so far is around Rs. 45 lakhs. ☐

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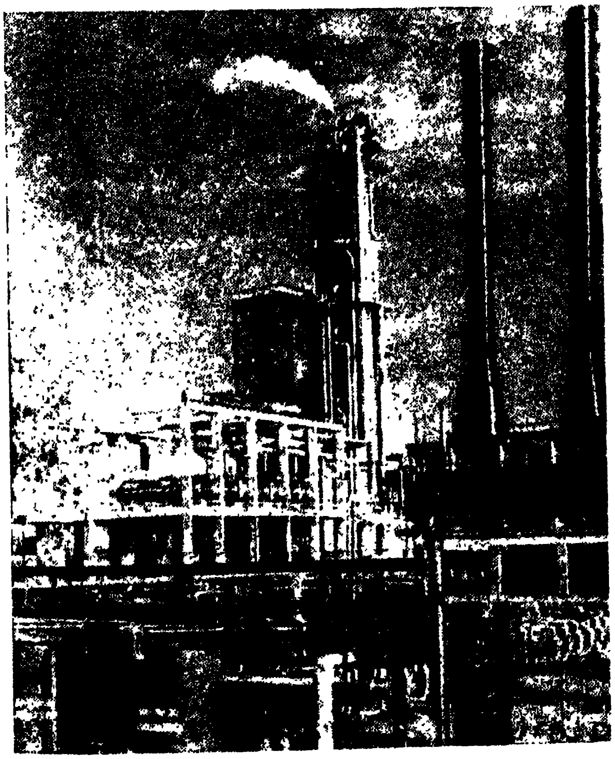
* Senior Correspondent, Yojana, Trivandrum.

Engineers India

ENGINEERS INDIA (EI) was established in 1965 as a joint venture between the Government of India and Bechtel Corporation of the USA : "To establish, provide, maintain and perform engineering and related technical consultancy services for petroleum refineries, development of oil fields, oil and gas pipelines, petro-chemical facilities, chemical intermediates and all other types of industrial projects".

Initially the EI was managed by Bechtel Corporation. Many of its key personnel were trained in San Fransisco. In mid-1967, Bechtel's interests were taken over, by mutual agreement, by the Government of India. Fully Government owned thereafter, the Company has continued to organise itself and operate commercially along the lines of a typical international consultancy and engineering company.

Today Engineers India has grown into one of the largest consulting and engineering design organisations in South Asia and it provides expertise in a number of diverse areas such as : Pipelines, Petroleum Refineries, Petrochemicals/Chemicals, Fertilizers, Non-ferrous Metallurgy, Offshore Structures, Ports and Harbours, Cement, Paper, Power and Refractories.



A view of Naphtha Cracker in IPCL Complex

A view of the Baroda Refinery crude unit.

EI offers the entire range of services required for a project from concept to commissioning.

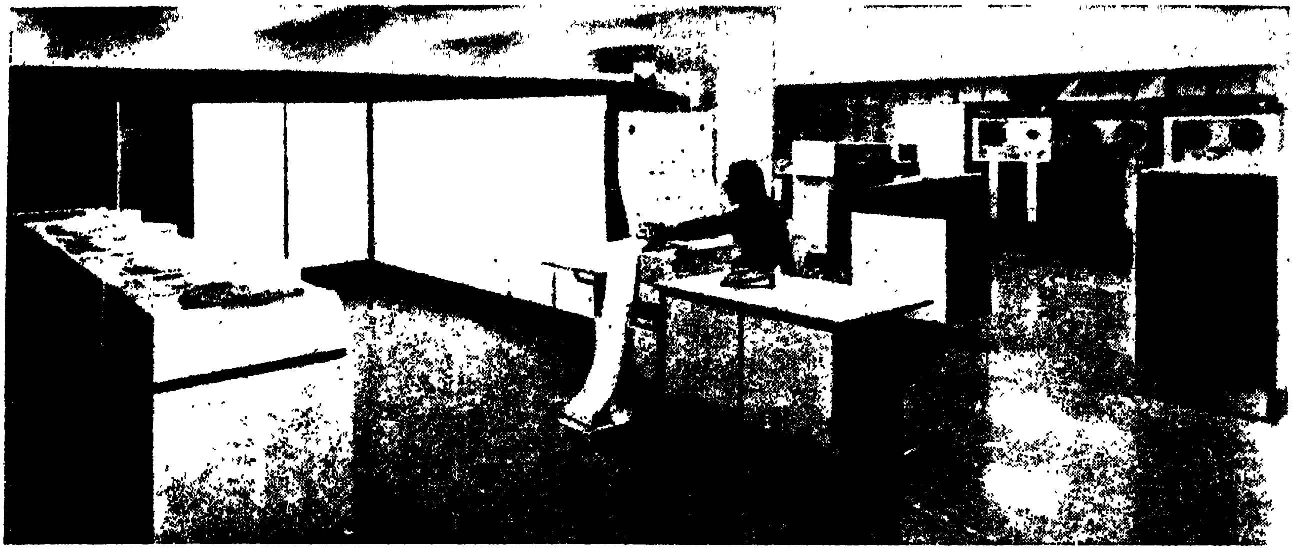
Over the years, Engineers India has grown from strength to strength. It has during this period implemented a number of projects worth over Rs. 2000 crores in its field of specialisation. Some of the major projects commissioned recently in India are a Rs. 450 crores petrochemical complex, a 3 million TPA petroleum refinery, two fertilizer plants of 900 TPD ammonia/1550 TPD urea capacities each, a number of offshore platforms and a 65 km. long slurry pipeline.

EI's total technical manhour availability per year is about 4 million, while its total strength is about 2900 people. On this basis EI has, at present, the capability to undertake annually design/engineering and management of projects worth about Rs. 400 crores in installed cost, in Indian conditions.

Following figures give an idea of EI's achievements during the last ten years :

	1970	1980
Paid-up Capital	Rs. 25 lakhs	Rs. 25 lakhs
No. of employees	554	2900
Fixed Assets (Net)	Rs. 9.58 lakhs	Rs. 377.5 lakhs
Current Assets(Net)	Rs. 38.35 lakhs	Rs. 593.5 lakhs
Income from services	Rs. 159 lakhs	Rs. 1815 lakhs
Net Profit	Rs. 22.25 lakhs	Rs. 203.5 lakhs
Reserves	Rs. 22.9 lakhs	Rs. 979.4 lakhs

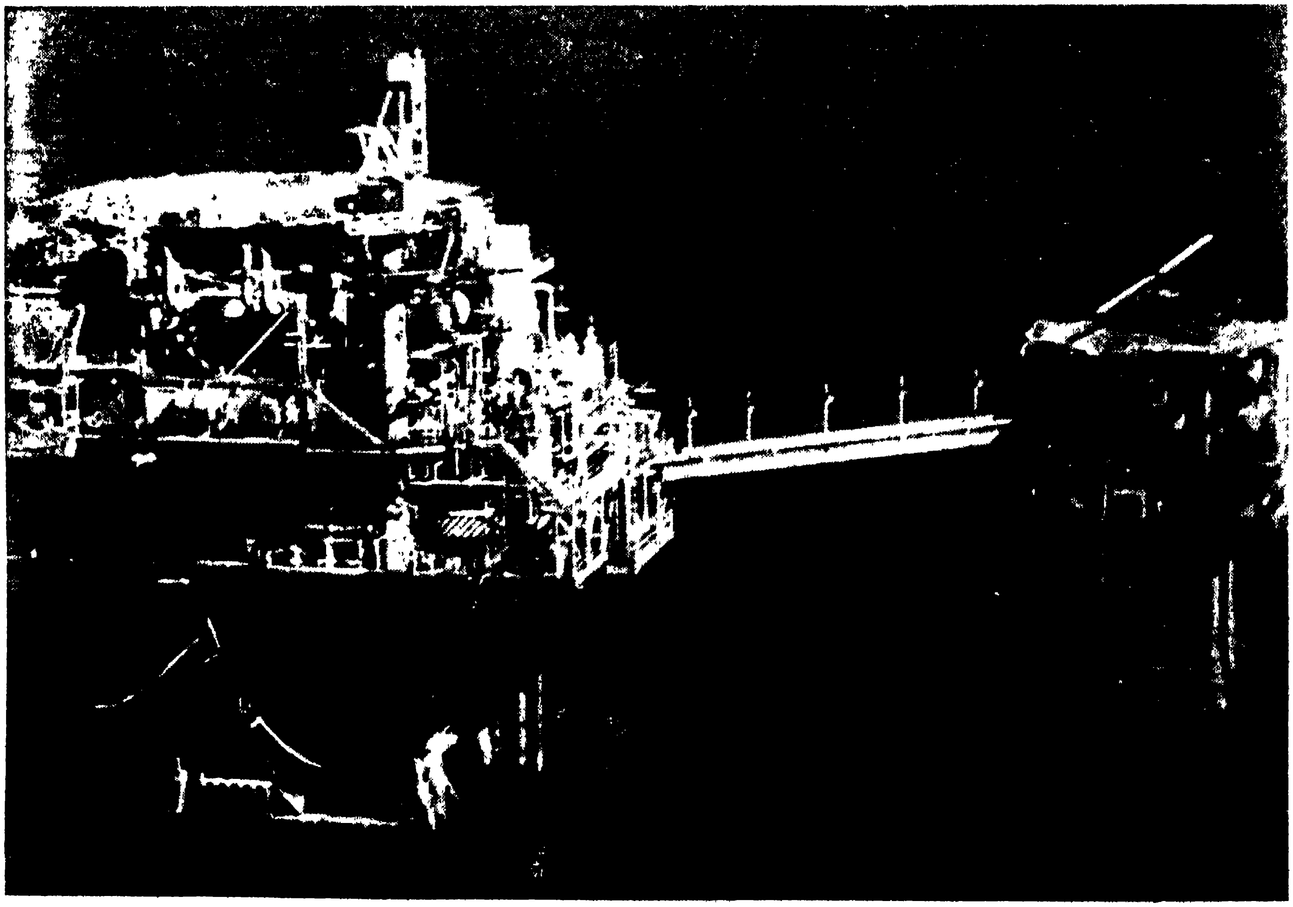
In the implementation of various projects of national importance the EI has significantly increased the indigenous contents of various technical services which were previously obtained from abroad. The contribution of EI is much more than the apparent



A view of ES-1040 Computer system.

monetary benefits to the national economy. It has acted as an instrument for the transfer of technology for some of the most important and sophisticated segments of industry. The participation of EI in various projects has enabled its engineers to master and assimilate difficult technologies, thus avoiding repetitive import of technology and also raising the level of technological competence in the country. The EI

Offshore drilling platform in Bombay High.



has helped the country achieve self-sufficiency not only in consultancy, but also in sophisticated capital equipment manufacture especially for the process industry. Over the years of its working, EI has been able to reduce the import content of equipment for sophisticated projects from more than 80-90 per cent to less than 20 per cent at present.

Engineers India have been operating in overseas market as well. In last ten years, it has provided services for projects in Abu Dhabi, Algeria, Iran, Iraq, Kuwait, Somali Republic and Sri Lanka. It has won contracts worth over Rs. 10 crores in services from SONATRACH of Algeria alone. It is currently providing engineering services for a pipeline and depot project in Abu Dhabi. It has already provided engineering and other consultancy services for Petroleum Refineries in Iran and Somali Republic, Fertilizers Projects in Sri Lanka and Pipelines and Petrochemicals Complex in Iraq. It has been providing technical assistance to State Organisation for Industrial Design and Construction and State Organisation for Oil Projects of Iraq for their projects. It has been recently retained by Kuwait National Petroleum Company for providing them with engineering consultancy services for a petroleum refinery. Engineers India's earnings in foreign exchange on account of consultancy services, which were Rs. 1.11 lakh in 1970-71 have touched Rs. 185.32 lakh in 1979-80. □

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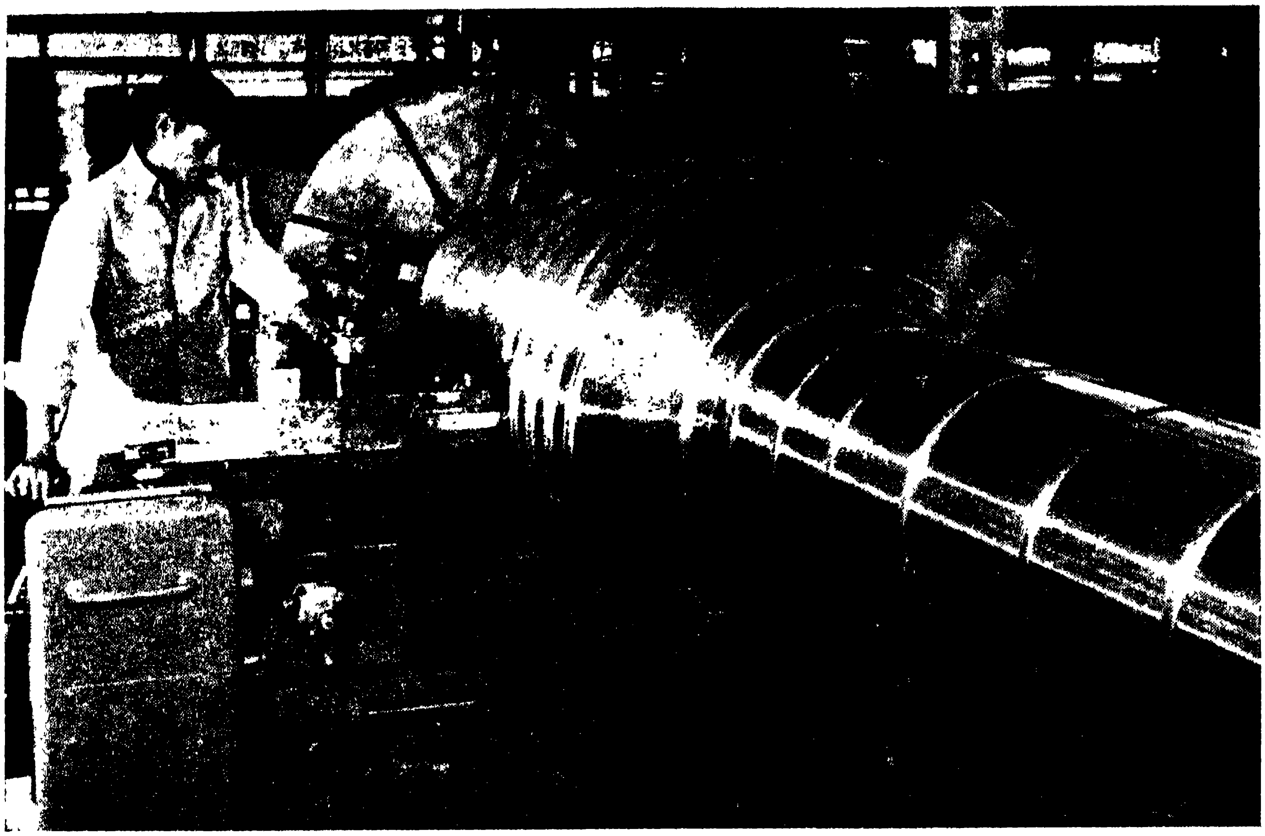
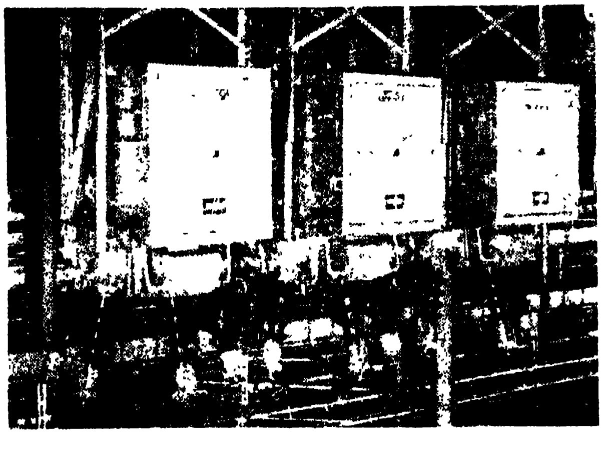


Machining of Turbo generator Rotor at BHEL Hardwar.

Round up

Bharat Heavy Electricals Ltd



Minimum oil Circuit Breaker at BHEL, Bhopal

BHARAT HEAVY ELECTRICALS LTD. ranks today among the top ten companies of the world which manufacture heavy electrical equipment. It offers products and services to the vital sectors of economy such as energy, industry, transportation etc.

The first Heavy Electrical Equipment Plant was set up in the country at Bhopal in collaboration with Associated Electrical Industries Ltd. of U.K. It went into production in July 1960. Later three more factories (one at Hardwar with Soviet collaboration and one each at Hyderabad and Tiruchi with Czechoslovak collaboration) were set up.

BHEL has grown to a position whereby it did a business of over Rs. 700 crore in 1979-80 and has set a target of Rs. 775 crore for the current financial year. The moving force behind this immense growth is its vast reservoir of human skills, over 66,000 employees.

Today BHEL has 19 divisions, out of which nine are manufacturing divisions. The new Seamless Steel Tube project at Tiruchi and Central Foundry Forge plant at Hardwar are vertical integration projects for supplying the components which were hitherto being imported. Radio and Electrical Manufacturing Company (REMCO) and Mysore Porcelain Limited at Bangalore are examples of acquisition for resuscitating the sick industries and providing expansion in the business of electronics and electro porcelains. A modern and well-laid out transformer factory, a second generation plant, has been established at Jhansi.

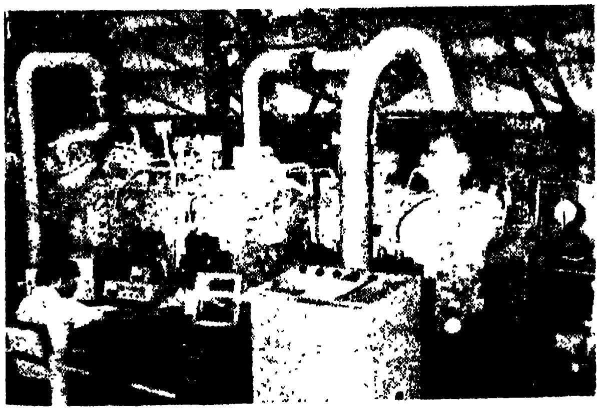
BHEL has for its employees five townships of more than 23,000 houses with a population of over two lakh.

Since its inception, equipment with an annual generating capacity of over 19,000 MW has been manufactured, out of which over 11,000 MW has been added to the country's installed generating capacity. During the current year alone it is envisaged that around 2170 MW of BHEL equipment will be commissioned which accounts for 86 per cent of the proposed addition to country's generating capacity during the year.

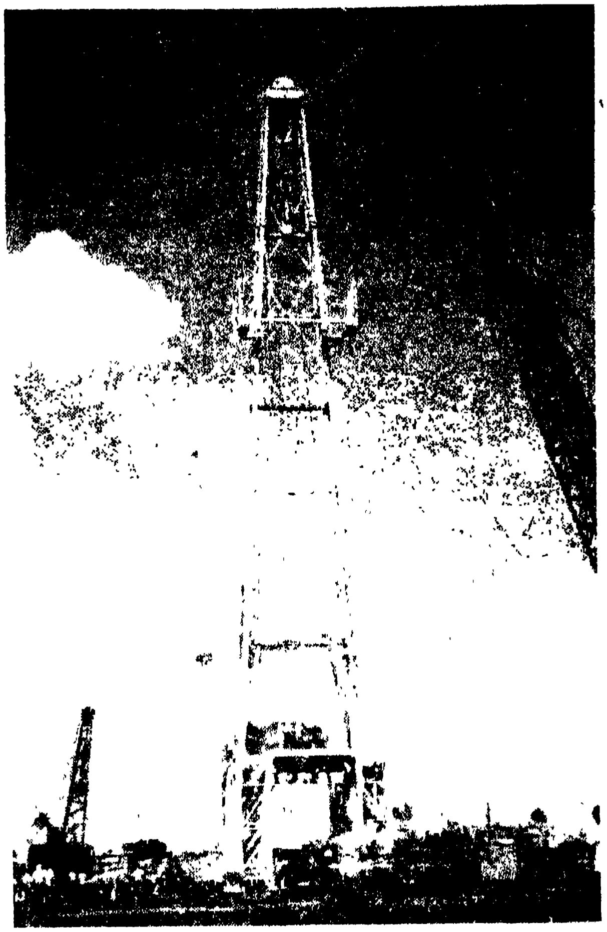
Since BHEL's inception, equipment valuing over Rs. 3700 crore has been supplied to the various customers. BHEL has so far exported its equipment and services to over 30 countries including South-East Asia, Africa and the Middle East.

BHEL has established a fully-equipped Corporate Research and Development Division which is continously engaged in modernising design and engineering.

Since its inception, BHEL has contributed more than Rs. 1000 crore to the exchequer by way of taxes, duties and dividend. BHEL has helped to organise the development of ancillaries around its manufacturing divisions as a result of which more than 130 ancillaries have come up.



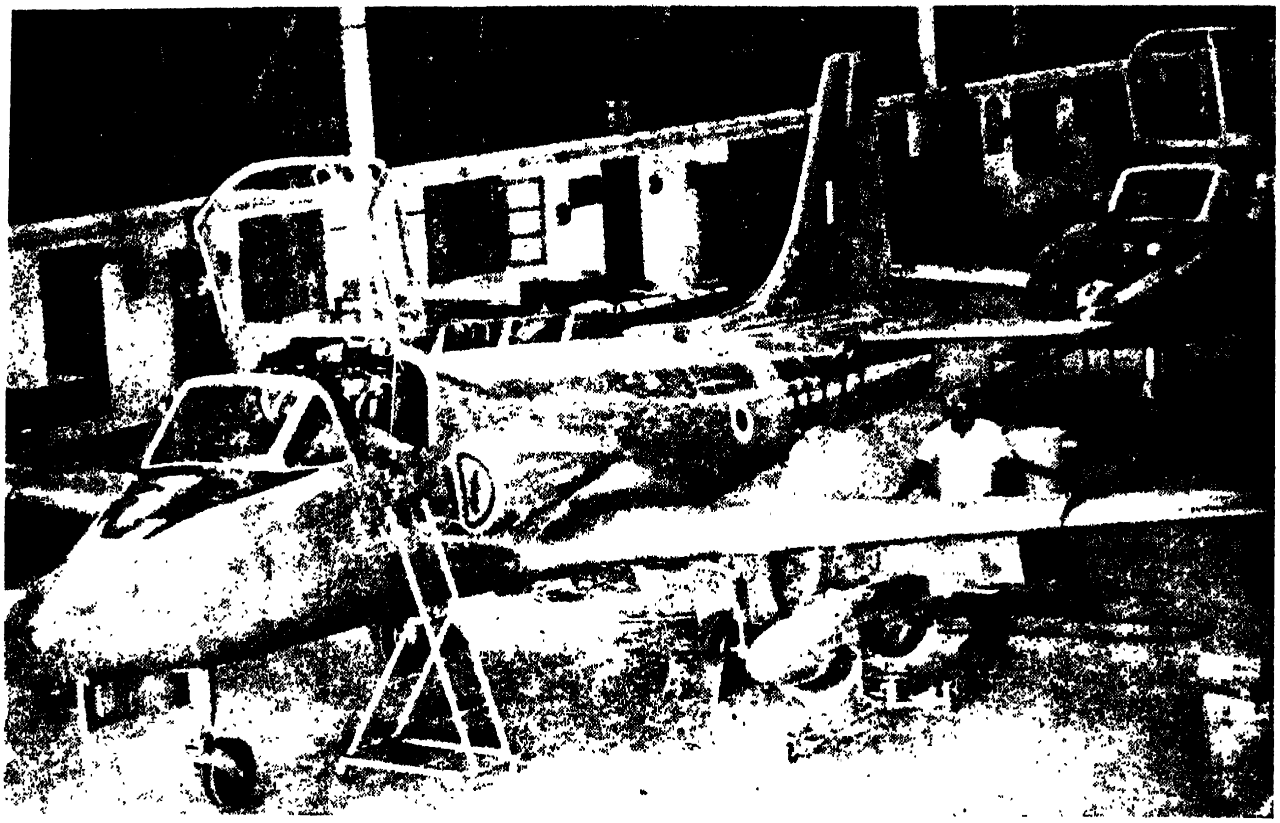
Tandem mechanical run test on a Three-casing syn Gas Compressor manufactured by BHEL, Hyderabad.



India's first on-shore diesel electric oil Rig, Type E-2000, manufactured, assembled and tested by BHEL stands 43.3 metres (142 ft) high from base to top and can drill up to a depth of 6000 metres (20,000 ft).

BHEL employees enjoy township, medical and other welfare benefits that compare favourably with other companies in the country. Today BHEL has 5 townships of more than 23000 houses with a population of over two lakh. The number of hospitals and dispensaries are 26 with approximately 800 beds. There are 74 schools imparting education to over 50,000 students.

The ambitious power development programme of the country offers immense opportunities for the growth of BHEL. With the various investment schemes amounting to approxiately Rs. 300 crore, BHEL's business level is expected to reach about Rs. 1,200 crore by 1983-84. ☐



An aeroplane under overhauling at HAL

Round-up

Hindustan Aeronautics Limited

THE aircraft industry made a modest beginning in India in 1940, with the establishment of Hindustan Aircraft (pvt.) Ltd., thanks to the vision of Late Shri Walchand Hirachand and to the State of Mysore.

During the Second World War, HAL became an overhaul and repair base for South East Asia command. After Independence, the Government of India acquired all the shares of the Company. In 1964, the Hindustan Aeronautics Ltd. was formed by merger of Hindustan Aircraft Limited with Aeronautics India Ltd. (set up for manufacture of MiGs) and the Aircraft Manufacturing Depot at Kanpur (set up for manufacture of HS-748 transport aircraft).

Over the past four decades, HAL has grown in size and range of activities which range from licensed production to design, development, manufacture and overhaul of aircraft, helicopter, power plants, avionics, instruments and accessories systems. HAL has 10 factories spread in five States in the country — viz., Karnataka, Andhra Pradesh, Maharashtra, Orissa and Uttar Pradesh. It has over 40,000 employees and the annual production is worth about Rs. 180 crore.

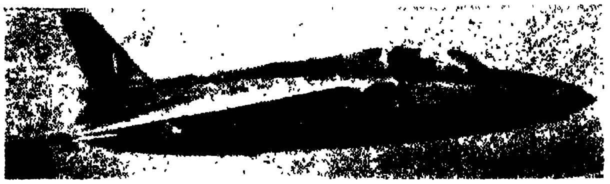
Over 2300 aircraft and helicopters valued at approximately Rs. 1050 crore, including HT-2, Pushpak, Krishak, Basant, Marut, Marut Trainer, Kiran, Ajeet, MiGs, HS-748 aircraft and Cheetah|Chetak helicopters have been produced. In addition, over 1500 jet engines, as well as a wide range of avionics, instruments and accessories have been produced in HAL factories. The latest addition to the range of products of HAL is the Jaguar International Aircraft in respect of which pre-production activities are in full swing.

Besides manufacture of aircraft, helicopter, engines, avionics, instruments and accessories, HAL has set up facilities for manufacture of jigs, tools and fixtures as well as high quality castings and forgings in support of these programmes.

The advanced technology and skills available in HAL have contributed significantly to the country's prestigious space programme. Components, sub-assemblies, inter-stage and shell assemblies for the Satellites and space launch vehicles have been fabricated and produced by HAL.

The growth of HAL has also spurred the development of metallurgical industries such as INDAL, BALCO, MUSCO, FISCO and MIDHANI. Besides, a number of sub-contractors and ancillaries are engaged in work for HAL and through their association with HAL, their level of technology in these has been upgraded.

The design offices of the Company are located at Bangalore, Hyderabad and Lucknow. The design office at Bangalore deals with design of aircraft, helicopter and small jet engines. HT-2, Pushpak, Krishak, Basant, Marut, Marut Trainer, Kiran and Ajeet are the notable major products developed successfully and put into production. Currently design and development work is in advanced stages on Ajeet Trainer, Kiran MK. II and HPT-32. Preliminary work on projects of Ligh Combat Aircraft, Armed Light Helicopter, etc., have also been taken up to meet the requirements of the 80's.



AJEET—one of the aircrafts in the range of 2300 crafts built by the HAL

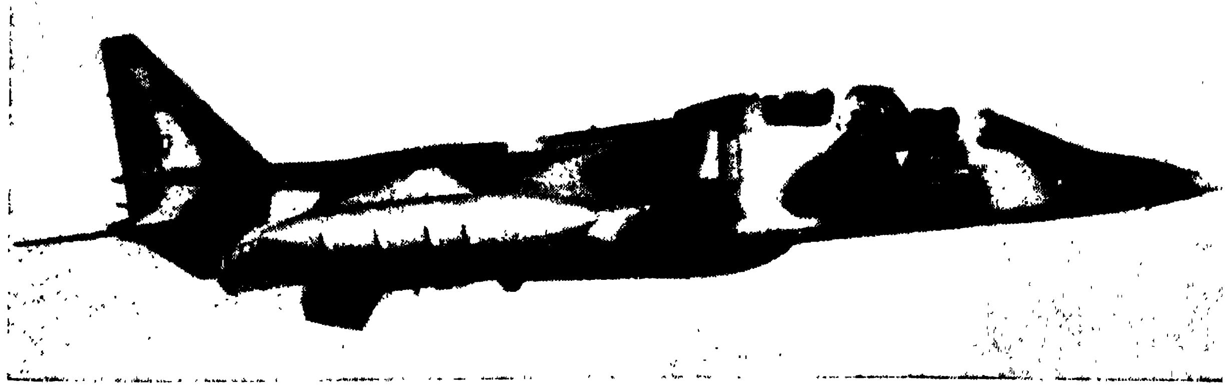
The Design Bureau of Hyderabad has successfully completed the design and development of airborne equipment such as IFF (Identification Friend or Foe), VHF and V/UHF communication sets and Radio Compass as well as ground-based Air Route surveillance Radar Precision Approach Radars. Further, projects on advanced airborne equipment such as Fire Control Radar, Radio Altimeter, High Frequency single sideband Comunication equipment etc., are in progress. The Bureau is well equipped with modern facilities for design and development of state-of-the-art electronic equipment including multi-layered printed circuit boards, thin and thick films, hybrid micro-electronics, etc.

HAL hasten factories in five states in the country and employs over 40,000 people. Its annual production is worth about Rs. 180 crore.

At Lucknow the design activities relate to development of wide range of accessories and instruments fitted to aircraft and fighting vehicles. A Gyro Land Navigation System for use in fighting vehicles (Tanks) has been successfully developed. Further, projects are being taken up to meet the ever growing needs of the modern aircraft.

The efforts of the several Design Bureaux will lead to progressive self-reliance and foreign exchange savings. ☐

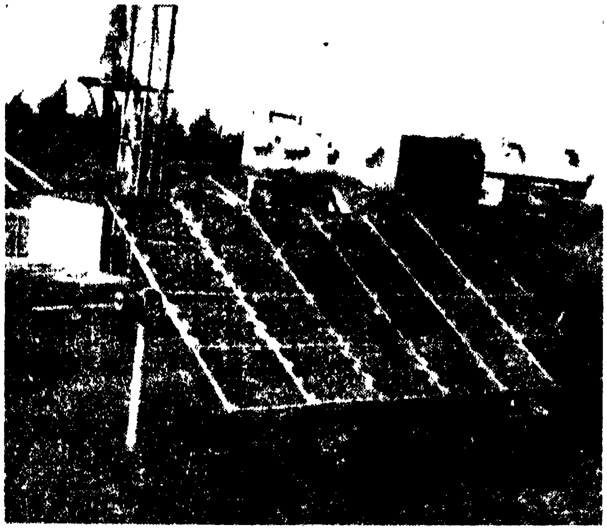
The latest addition to the range of products of HAL is Jaguar International Aircraft in respect of which pre-production activities are in full swing.



Central Electronics

A Solar Panel at CEL

THE factory of Central Electronics Limited (CEL) is located at the Industrial Estate in Sahibabad (UP). It was established in June 1974 (A Government of India Enterprise). It manufactures the following products : Professional Ferrites for Television, Communication and Power Electronic Applications viz. Potcores, RM Cores, E and I Cores. UU and UI Cores, memory Cores for Computers, Ceramic Capacitors for Radio and Television. Fluorescent tube Starters, piezoelements for ultrasonic transducers and gaslighter cartiges. High purity alumina ceramics for power rectifier housing, substrate for cermet potentiometers and feedthrus for vacuum coating units, combustion boats, crucibles etc. Solar Photo-Voltaic cells. Solar Panels for power displays light emitting diodes and displays for Panel indicators, digital instruments, calculators and clocks etc., Nitrogen Laser for UV radiation. Holographic gratings for instruments, High Intensity Monochromators, Photon Counters, Automatic Slide Projectors, Synchronised Projection Systems for Audio Visual Aids etc.

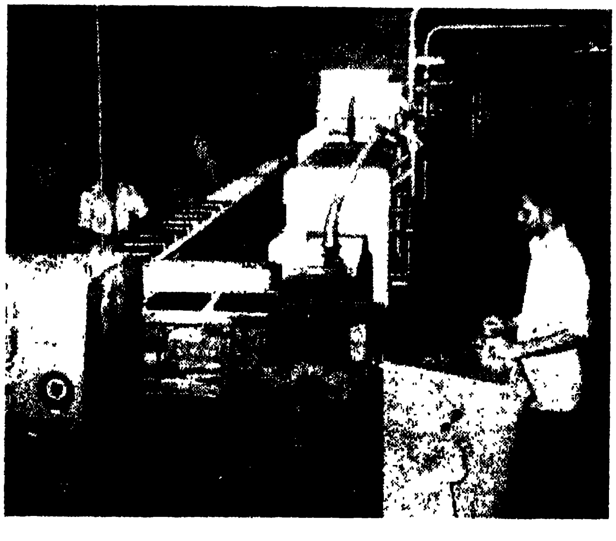


LED Assembly (Bonding) of CEL

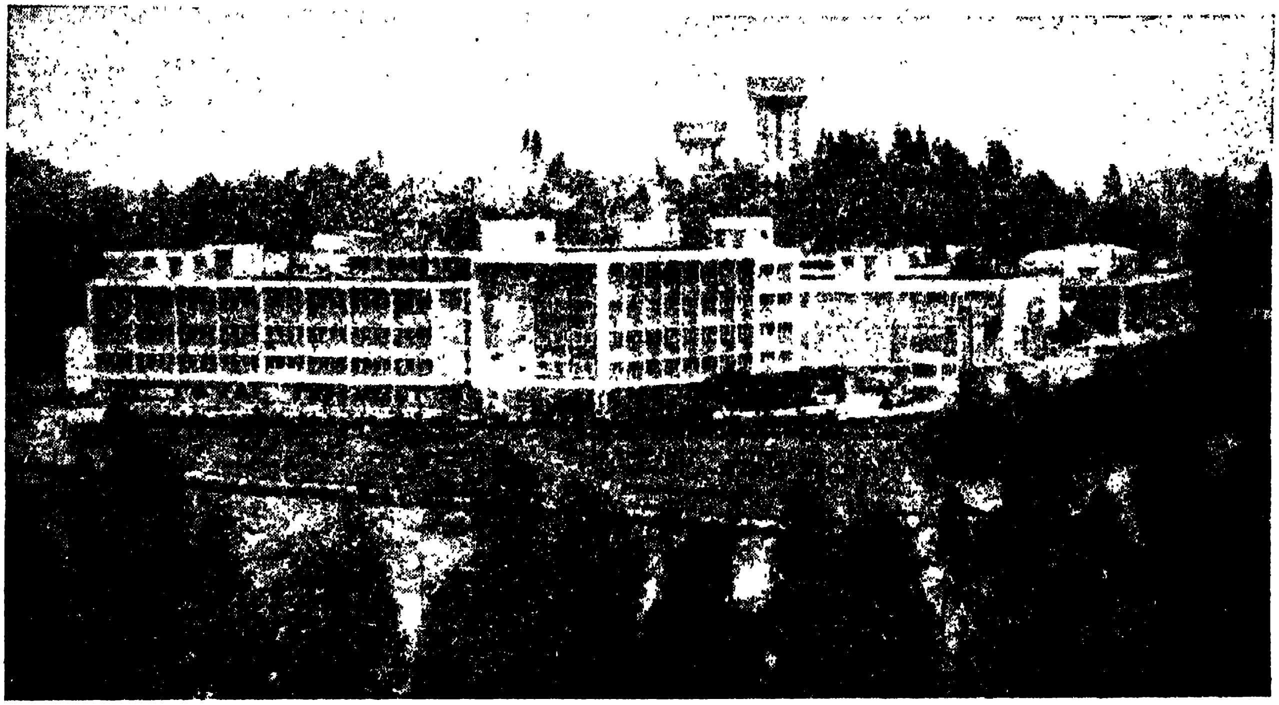
The CEL is India's seventh public sector unit manufacturing sophisticated electronic components, and systems using purely indigenous knowhow and technology Set up under the aegis of the Department of Science and Technology, it is the second public sector venture with a motto to produce items based on purely indigenous knowhow. It has been developing, expanding and diversifying ever since it started functioning in the newly constructed buildings in Sahibabad in April, 1977, taking knowhow developed in the CSIR Laboratories, BARC, IIT's and other R and D organisations in the country.

Central Electronics is also co-ordinating various developmental projects, sponsored by the Department of Science and Technology and the Department of Electronics. To mention a few Scanning Electron Microscope, Magnetrons, Halogen Lamps, Micro-wave ovens etc. Under the DST's sponsorship it is initiating and coordinating massive programmes on Solar Cells. Solar Panel sand Systems connected with solar energy conversion to meet domestic agricultural needs in rural areas in the country.

According to the revised project estimates approved by the Government of India in August 1977, the ultimate capital investment in the CEL by 1984-85 would be Rs. 70 million with a production target of Rs. 101.8 million, and a manpower of 2120.



Precision Sintering of Professional Ferites



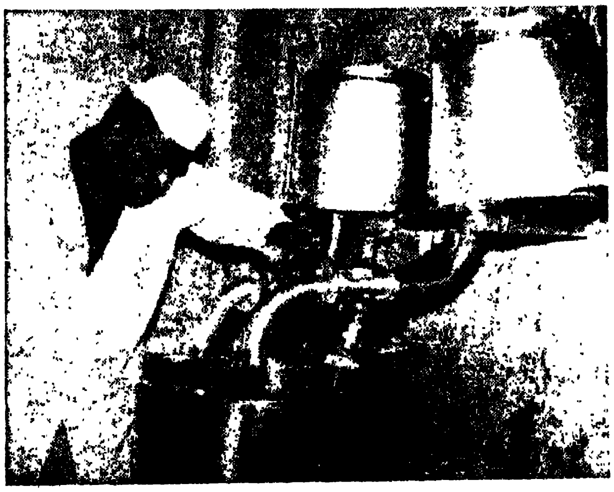
A view of the factory at Ootacamund

Round-up

Hindustan Photo Films

THE Hindustan Photo Films (HPF) took birth at Ootacamund as a wholly owned Government Company in the Public Sector in November 1960. It was established with French and later, American collaboration. The Project cost was in the order of Rs. 1,167 lakhs.

Emulsion deptt. of the HPF



The Company had been incurring losses in the initial eight years - a situation not uncommon in similar complex technology industries elsewhere too. It has been earning profit from 1975-76 onwards, in 1979-80 its profit was Rs. 267 lakhs. The value of its production has increased from Rs. 698 lakhs in 1973-74 to Rs. 4850 lakhs in 1979-80.

HPF is one of the six companies in the world manufacturing Photo, Cine and X-Ray films from the raw material to the finished product, the others being Agfa, Kodak, Orwo, Fuji and Ferrania. The country's entire requirements of Black and White Cine Positive Film of Cine Sound Negative are met by the HPF. The total requirements of Bromide Paper are met from indigenous sources, the HPF having major market share. Foreign exchange saved so far by the Company is about Rs. 30 crores.

The Company has its chemical process plant at Ambattur (Madras) wherein, it has also recently set-up a Conversion Branch for two new products i.e. Industrial X-Ray, and Graphic Arts with technical assistance agreement with M/s. Dupont of the USA.

The Company takes care of its employees numbering 2800 as its most precious assets. Its attitude towards these assets is progressive consistent with the ethos of the Public Sector.

A Project for setting-up separate Research and Development Centre at a cost of Rs. 250 lakhs is contemplated within the next two years. The HPF has plans for creating additional coating capacity to the extent of 4-5 million sq. meters to meet the increase in demand for the existing products and also for the manufacture of amateur roll films at a project cost of Rs. 200 lakhs with a lead time of two years for completion.

Another venture being planned is to set-up new Coating Facility for Industrial X-Ray and Graphic Arts, which are otherwise only converted from semi-finished imported materials as is now done.

The Company has drawn plans for increasing the manufacture of cine colour positive in the VI Plan.

Raw Base Process in Film Base

Round-up

United Commercial Bank

IN 1943 United Commercial Bank was originally incorporated as the United Commercial Bank Limited with its headquarters at Calcutta. Shri S. D. Birla was its first Chairman and Shri B. T. Thakur first General Manager. Within 8 years, the Bank ranked among the first big five commercial banks in India.

The Bank was nationalised in 1969. During the next decade the number of its branches increased from 323 to 1066 (among them 439 rural); deposits have risen from Rs. 240.58 crores to Rs. 1236.22 crores and advances from Rs. 144 crores to Rs. 790.62 crores (advances to priority sector being Rs. 1790.05 crores). The net annual profit increased from Rs. 83.40 lakhs to Rs. 2.12 crores.

A Punjabi Weaver who received financial help from UCO Bank

At the end of 1979 the Bank had 1128 branches with the employee strength of 20,828.

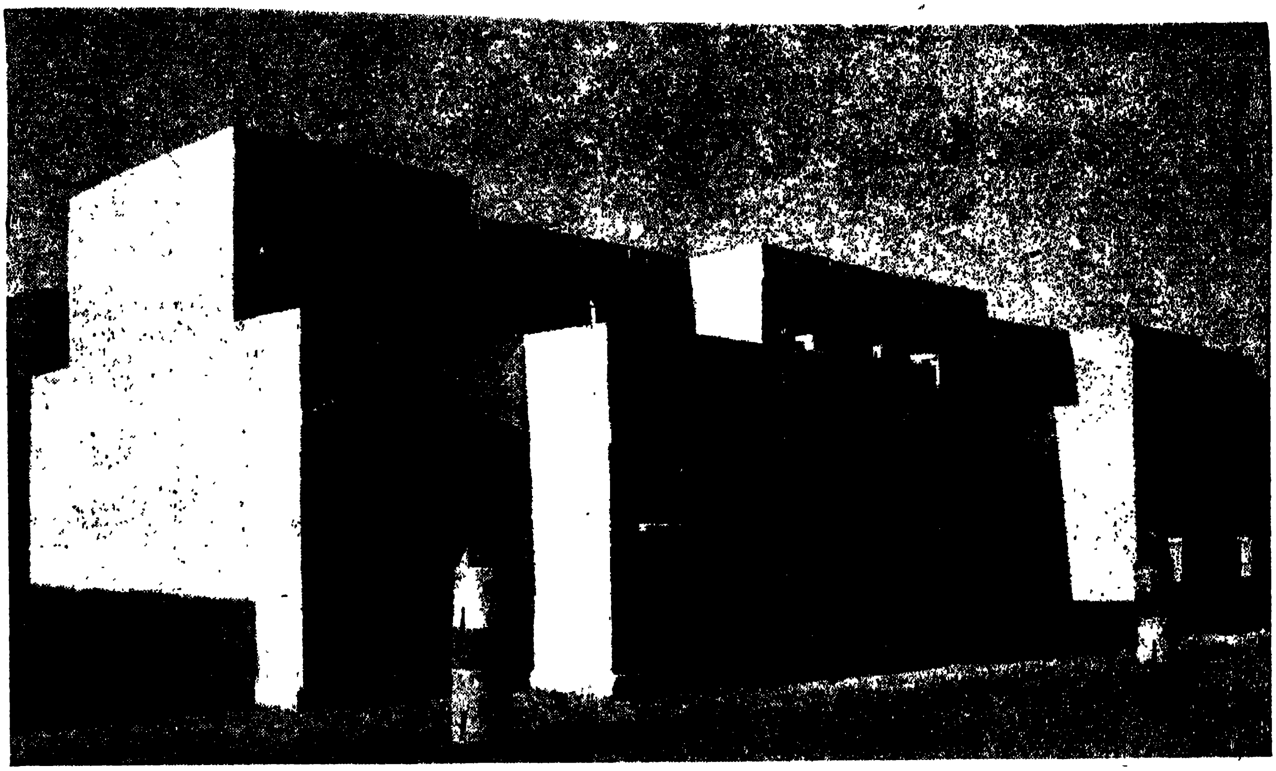
The Bank now has 24 lead districts in the Seven States of West Bengal, Assam, Orissa, Bihar, Rajasthan, Himachal Pradesh and Punjab. At the end of 1979, there were 390 branches of the Bank in these lead districts. Four Regional Rural Banks, with 167 branches, in Rajasthan, West Bengal, Orissa and Bihar have been sponsored by the Bank. In 1980 was sponsored another Regional Rural Bank in Balasore of Orissa. One more will be in Burdwan of West Bengal.

During 1979, the total outstanding in the Priority Sectors stood at Rs. 235 crore, forming 30 per cent of the total credit of the Bank. In the agricultural sector, the outstanding rose to Rs. 94 crores. The Bank's advances to small and marginal farmers with holdings up to 5 acre were Rs. 29 crores.

The Bank adopted, 3,548 villagers in most of the States by 1979. The villagers have been adopted in clusters and all development needs of the villagers were sought to be met. The Bank provided them credit assistance with outstanding at Rs. 21 crores.

The Differential Rate of Interest Scheme was implemented by 818 branches of the Bank. Total advances under the scheme were Rs. 4.5 crores covering 61,519 accounts.

Credit Plans were launched by the Bank in 1978. These plans had been drawn up on a survey of selected blocks in each lead district.



HUDCO's EWS housing at Rajkot, Rs. 700 *per unit and below.*

HUDCO

The Housing & Urban Development Corporation Ltd., (HUDCO) was established in the year 1970 by the Government of India as an apex organisation to finance and undertake housing in the country with primary emphasis on the promotion of housing for low income groups and weaker sections, who constitute the majority of the country's population.

In pursuance of its objectives, the HUDCO provides financial assistance for various types of schemes, such as urban housing, rural housing, houses for employees, cooperative housing, urban development, and manufacturing of building materials and also provides comprehensive consultancy services.

After having achieved the target of Rs. 139.20 crore for loan sanctions during the year 1979-80, the HUDCO had set a target of Rs. 160 crore for loan sanctions in the year 1980-81. During the seven months of the current year it has sanctioned 203 projects with a project cost of Rs. 154.56 crores with HUDCO's loan commitment of Rs. 98.73 crore. It has also set for itself a loan release target of Rs. 89 crore for 1980-81 as against Rs. 77 crore released last year. The HUDCO has adopted the strategy that 55 per cent of the funds committed for housing should benefit the lowest income categories with monthly household income not exceeding Rs. 600. Of the total 1,00,105 dwellings which came up with the sanction made during April—October. 85 per cent are meant for these lowest income categories.

The Corporation also started financing rural housing schemes from the year 1977-78. It has so far sanctioned loans to the tune of Rs. 3,437.15 lakh for building 2,55,920 dwellings.

From inception till 31st October, 1980 the loan sanctions of the Corporation have reached Rs. 647.40 crore for building 7,18,242 dwellings and developing 62,489 plots.

The HUDCO has, constituted a Sub-committee of its Directors to conduct high level talks with the Chief Ministers|Housing Ministers and other high ranking officers of the States which have not been taking adequate assistance from it to induce them to undertake more schemes with the HUDCO's assistance.

It has also undertaken direct implementation of a low cost housing project for the Delhi Development Authority in Delhi, involving the construction of 1180 houses for economically weaker sections and 875 quarters for Government employees.

The HUDCO has decided to build up a revolving fund of Rs. 200 crore for the achievement of its objectives. As on October 31, 1980 it has mobilised resources to the extent of Rs. 242.98 crore. ☐

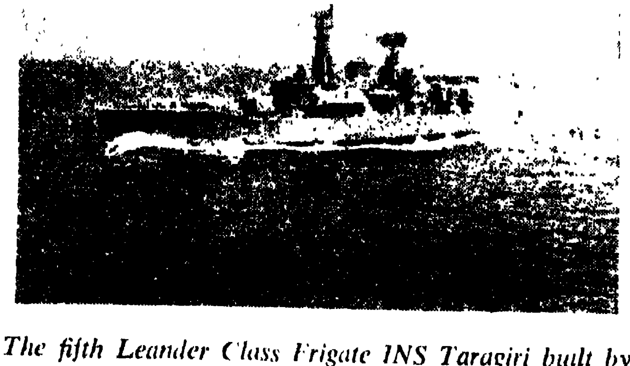
Mazagon Dock Limited

THE history of Mazagon Dock Ltd., Bombay, goes back to over 200 years and makes a fascinating study in the history of ship building in India. In 1774, the first dry dock was built. According to available records, Lord Nelson, hero of Trafalgar, visited Mazagon Dock on board H.M.S. SEAHORSE in 1775-76. In fact, some of the teak ships built in Mazagon Dock took part in the Battle of Trafalgar.

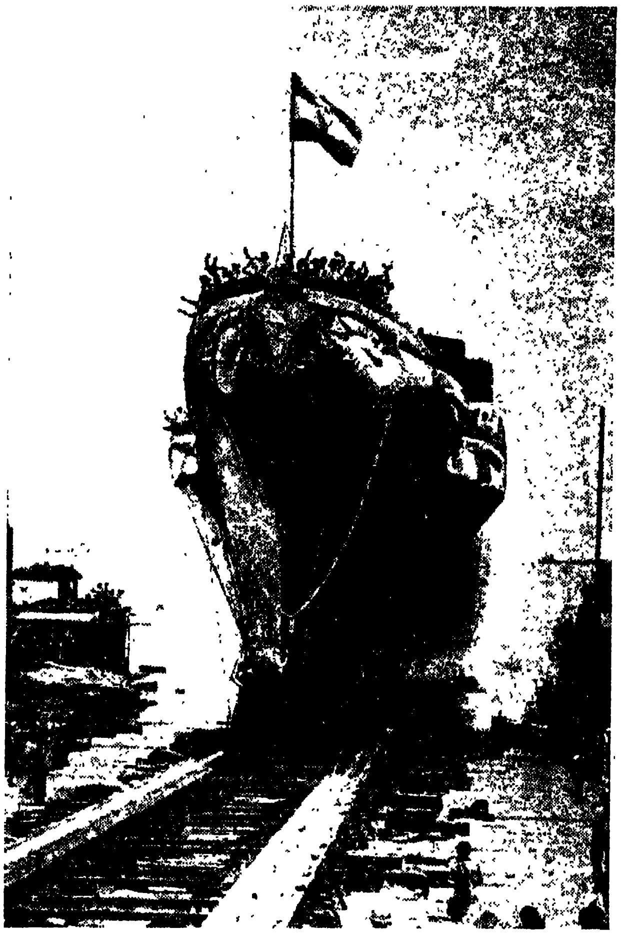
Mazagon Dock was jointly owned by Peninsular & Oriental Steam Navigation Company and British India Steam Navigation Company of the United Kingdom upto 1960 when it was acquired by the Government of India as a Public Sector Enterprise under the administrative control of the Ministry of Defence, Department of Defence Production.

At the time of the takeover, Mazagon Dock was primarily a ship repair yard. Subsequently, it was modernised and expanded for building warships as well as merchant ships and for increasing ship repair work.

Mazagon Dock is capable ' building sophisticated warships such as submarines, destroyers, frigates and corvettes It has already built and delivered Frigates to the Indian Navy. The fifth and sixth Frigates are being fitted out. Mazagon Dock has now embarked upon a more challenging venture, namely construction of Frigates of entirely Indian design.



The fifth Leander Class Frigate INS Taragiri built by Mazagon Dock.



The first Indian designed frigate Godavari built by Mazagon Dock.

As regards Merchant ships, Mazagon Dock can now build vessels up to about 27,000 DWT. Mazagon Dock can build cargo vessels, passenger-cum-cargo vessels, passenger vessels, dredgers, tankers, water tankers, tugs, fishing trawlers, barges, etc. It has built a luxury passenger-cum-cargo vessel for the Shipping Corporation of India, two Cargo Vessels for Singapore, six cargo vessels for United Kingdom, dredgers for various Port Trusts in India and other vessels for Indian Shipowners and export market.

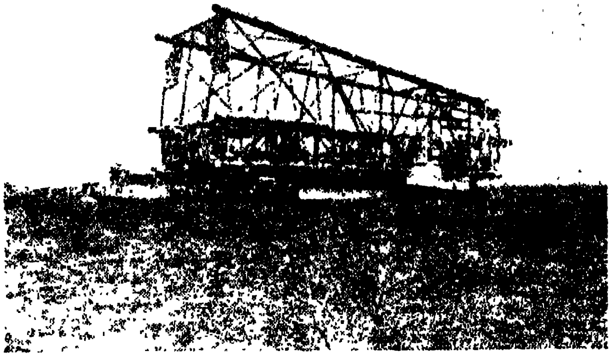
Besides ship building, Mazagon Dock is fully equipped to carry out all types of major repairs to passenger ships, tankers and cargo ships.

In view of the all round efforts being made for the exploration and production of oil from offshore resources, Mazagon Dock has diversified in the field of manufacturing offshore Fixed Platforms and other offshore structures. The Company has received an order for the manufacture of six offshore Fixed Platforms for the Oil and Natural Gas Commission for installation at Bombay high. Of this two platforms have already been installed at Bombay High. The fabrication of the offshore platform requires sophisticated technology and it is a matter of pride that Mazagon Dock has taken up the challenge.

The company can undertake a variety of heavy engineering works such as the manufacture of large pressure vessels, precision machining, radiograph quality welding, overhaul of steam, diesel and petrol engines, etc. It can also manufacture port, dock and shipbuilding cranes.

Mazagon Dock successfully entered the export market in shipbuilding for the first time in India in 1974-75. During the short period since then, export orders worth over Rs. 45 crores have been secured from the U.K., Singapore, Iran, Saudi Arabia and Yemen. Most of the vessels against these orders have already been delivered and work on the remaining vessels is in progress according to schedule.

The Dock's activities are now being expanded further. In order to meet the requirements of barges and small cargo vessels for export and domestic market, the Company assisted in the development of a number of small shipyards on the west coast of India. This step has helped in augmenting the country's ship building capacity as well as generating additional employment opportunities.



The Jacket of the Offshore fixed Platform built for Bombay High.

Mazagon Dock possesses an invaluable asset in the experienced and skilled manpower of 11,000 officers and workmen.

The Company has been able to maintain production and earn better profit inspite of world-wide recession in ship building and ship repair industry. The total production for the year 1978-79 was Rs. 52.11 crores and the profit before tax was Rs. 260.62 lakhs.

Some articles on the Public Sector could not be accommodated in this issue, as they were received late. They will be published in our next issue.

Editor

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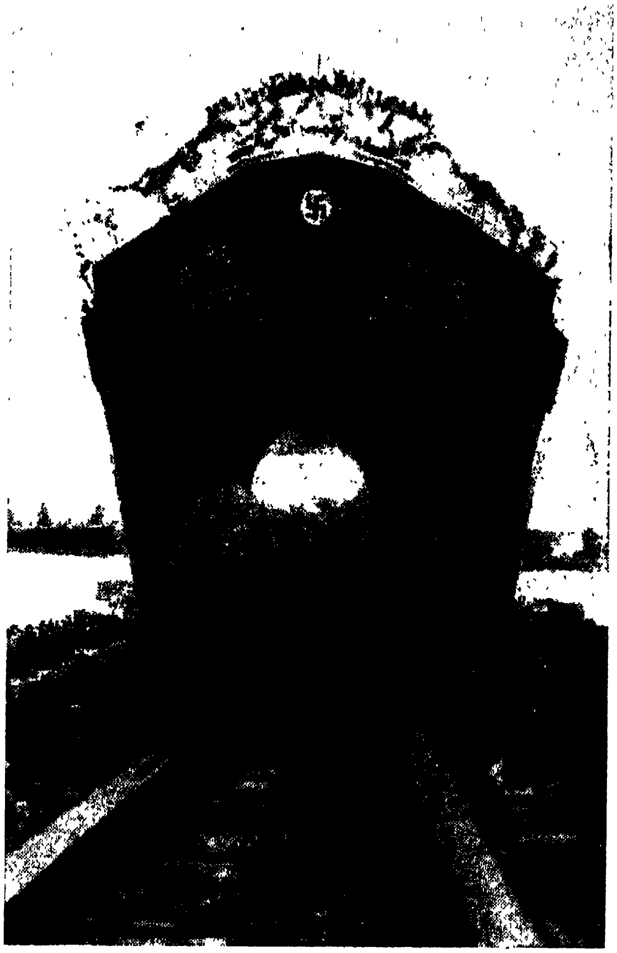
Vizag Shipyard



Launching of a Ship built by Vizag Shipyard

HINDUSTAN SHIPYARD, Visakhapatnam, owes its existence to late Shri Walchand Hirachand, who as Chairman of the Scindia Steam Navigation Co. Ltd., was responsible for the launching of this venture. The first 8,000 ton steam ship "JALAUSHA" was launched on 14 March 1948 by the late Jawaharlal Nehru.

After building eight ships of the 'JALA' series totalling 36,105 GRT, the Scindia's found themselves unable to finance either the construction of ships or the development of the Yard without state assistance. The Government of India acquired a major interest in the Shipyard, in 1952 and fully took it over in 1961.

After nationalisation, with the assistance of a French firm of consultants, a development programme was implemented. This programme which cost about Rs. 297 lakh was successfully implemented in two phases in the First and Second Five-Year Plans.

With the tempo of production thus geared up, the tonnage of ships built rose to 1,00,000 GRT by July 1958. Since the expiry of the agreement in July 1958 with the French consultants, the Shipyard is manned entirely by Indian personnel. The Shipyard won the Presidential Award of "Certificate of Honour" for satisfactory performance during 1961-62.

The Shipyard has capacity to build all types of general cargo vessels upto 18,000 DWT and bulk-carriers tankers upto 30,000 DWT. It can also undertake construction of Naval Vessels oceanographic Survey Vessels, big Trawlers, Supply Vessels, harbour craft of various types and other specialised vessels. The capacity of the yard may be reckoned at three ships per annum.

The Shipyard has built up a nucleus of its own technicians and engineers by a phased programme of intensive training in almost all the shipbuilding trades. Its payroll include more than 50 specialised trades and professions. The strength of the Yard comprises over 8,800 employees. In the matter of workmanship, the ships built in the Yard are second to none in quality and performance, and carry the highest classification assigned by the various Registers of Shipping or Classification Societies.

As on date, a total number of 79 ships (including small crafts aggregating to about 8,23,062 DWT 5,67,161 GRT have been built and delivered by the Yard. These cover a wide range from ocean-going cargo liners to all types of specialised craft, and include a sophisticated Naval Survey vessel, a modern training ship, two passenger ships and a good number of miscellaneous crafts.

The 'Pioneer' Class vessels patented by Messrs. Blohm & Voss, West Germany are different in many ways compared with the type of vessels built earlier in the Yard. These will be the largest vessels both in dimensions and in dead-weight ever built in India and are very sophisticated. The Shipyard has so far built and delivered 11 'Pioneer' Class Ships.

A new flexible basic standard hull form has been evolved in recent months. The novelty of the design is that it can be utilised in building different types and sizes of vessels while yet retaining to a very great extent many standardised features as 'common' and 'identical'.

Built at a cost of Rs. 5.32 crore, the Yard's Drydock was commissioned in 1971. It is the biggest of its kind in India in its principal dimensions and docking capacity. The dock is capable of accommodating all vessels upto 57,000 DWT and some in the range of upto 70,000 DWT. Within the short period, the dock has earned a name for itself and has turned out intricate repair work on submarines, warships, naval survey vessels and a good number of merchant ships. Repairs to vessels, both Indian and foreign have started yielding savings|earnings in foreign exchange.

The wet basin of the Yard (costing Rs. 4.99 crore) was commissioned in March 1976., and is an active adjunct for afloat repairs of ships.

The repair complex is situated in an area of 30 acres immediately next to the ship-building area.

To set right the imbalance in the existing equipment and physical facilities and to replace the out-moded machinery, and to keep abreast of latest techniques and methods in modernising shipbuilding, Hindustan Shipyard has embarked upon ambitious plans of modernisation and expansion since 1969. The first phase, at an estimated cost of Rs. 6.09 crore, is almost completed.' The second phase at an estimated cost of Rs. 3.66 crore, is on hand. These programmes have enabled the Yard to raise its capacity to three "Pioneer" Class Vessels per annum. Next phase of programme which is estimated to cost Rs. 49 crore will raise the Yard's capacity to seven or eight ships per annum. This proposal is currently under consideration of the Government.

Aerial view of Hindustan Shipyard Ltd. Vishakhapatnam

The Shipyard has a residential colony, known as "Gandhigram" situated close to the Yard. The colony which is 146 acres in extent, has 1744 residential units apart from public institutions catering to the need of the residents.

The turnover of the Company increased from Rs. 2680 lakh in 1978-79 to Rs. 3133 lakh in 1979-80. Consequently, the dividend payable was increased from 6 per cent to 7 per cent during the year. The keel-laying, launching and delivery of ships were doubled in 1979-80 as compared to the previous year.

The company has contributed to the National Exchequer during 1977—80, an amount of Rs. 1231.82 lakh by way of dividend, Income tax and excise duty. ☐

The Indian Iron & Steel Company

MODERN METALLURGY was introduced to India with the establishment of two open top blast furnaces at Kulti in 1875. The Works at Kulti after changing hands several times was merged with the Indian Iron & Steel Co. Ltd. (IISCO) in 1936; IISCO itself having been founded in 1918 initially to produce pig iron at its Works located at Burnpur. The steel-making facilities at Burnpur were added in 1939. Burnpur Works was expanaded to produce one million tonnes of ingot steel in the late fifties. During the same period the iron-making facilities of Kulti Works were dismantled while the foundries and spun pipe making facilities expanded. The plant at Burnpur operated at the rated capacity for two consecutive years in the mid-sixties. Thereafter, as a result of the sharp decline in production, the management of IISCO was taken over by the Government of India in 1972. IISCO was nationalised in 1976 and made a fully subsidiary of the Steel Authority of India in 1979.

IISCO today is a multi-unit Company with its steelworks at Burnpur, in West Bengal, collieries at Chasnalla and Jitpur in Bihar and Ramnagore in West Bengal. It has iron ore mines at Gua and Chiria in Bihar and a coal washery at Chasnalla, a 54 Km aerial ropeway from Chasnalla to Burpur and foundries and spun pipe plants at Kulti in West Bengal Stanton Pipe and Foundry Co. Ltd., with a modern spun pipe plant at Ujjain in Madhya Pradesh is a subsidiary of IISCO

A Plant Rehabilitation Scheme (PRS) with an estimated expenditure of Rs. 58 crores was launched in 1973. The PRS helped to restore the technical health of the plant to a large extent. Production of saleable steel which had declined to 43.4 per cent of the installed capacity in 1972-73 improved to 67.5 per cent in 1976-77, but thereafter declined to 53.7 per cent in 1979-80, primarily because of shortage of vital inputs like power and coking coal, and inferior quality of raw materials. These are being tackled and although shortages persist to some extent, it is expected that the plant will achieve more than 65 per cent capacity utilisation during the current financial year. In the immediate future major repairs to two old coke oven batteries and relining of one of the two large blast furnaces have been planned. A new coke oven battery at an estimated cost of Rs. 27 crores and a box wagon tippler are under construction.

To make IISCO viable improvements in the iron and steel making technology have been envisaged and the benefits of these are likely to accrue during the sixth Five Year Plan (1980-85). An investment of about Rs. 5 crore has been made to extract prime grade coking coal by open-cast mining at Chasnalla. Diversification of Kulti's products are also envisaged.

For Peaceful Progress of the North East

Indira Gandhi*

IN our system, the States are distinct units and each has its problems, but a regional approach helps each unit to solve its problems better. Even in the international sphere the regional approach is now being welcomed. Every one of the States and Union Territories of our North East has its own personality; yet, there is a family resemblance among them. That is why the expression 'seven sisters' came to be applied to them The rest of the country holds the 'seven sisters' in special affection.

The complexities and diversities of India are many. They relate to language, to religion, resource endowments and the quality and pace of development. But we are an integrated whole, determined to survive unitedly in spite of differences. We are constantly trying to resolve these differences. All states and all regions must share burdens and contribute to the development of the country as a whole The country's progress does not depend only on the speed of the fastest, but must take into account the pace of the weakest. This is why our schemes of development pay special attention on the redressal of regional disparities.

The North East is one of our lesser developed regions. Its resources--physical and human—must be better utilised The people are impatient for development and we can understand this. The restlessness of the young people increases when they see the advance in other parts of the country. In the initial stages, the processes of economic development aggravates disparities.

Regions or countries which are backward and which have to run to keep in the same place start with big handicaps A great deal of development has taken place, but we have to go a long distance still. The main sectors of development of the North Eastern region are : Transport, Communication, power management, modernisation of agricultural practices, marketing, institutional finance and training. In each of these there has been advance under the direction of the Council. In transport and communications, power and agriculture and in industrial development, many new projects have been taken up.

As soon as our Government took over office this year, we appointed a Committee of Ministers to give extra impetus to your development projects and programmes. A High Power Committee of officers under the Cabinet Secretary has been at work to determine areas where special attention is needed. The Committee has identified schemes requiring priority attention for the development of roads, railways, services and productive activities in agriculture, horticulture, water management, handicrafts, handlooms and small industries. The developmet of manpower has received special emphasis. The North-Eastern Council will have to dovetail this effect into a long-term perspective. While doing so, you have to keep in view the socio-economic needs of the different States in the region. You must also ensure that the weaker sections of society, particularly the tribals, get a fair deal.

Development with Conservation

We are intent on completing the new Brahmaputra Bridge within the Sixth Plan and also taking up the Garo Hills Ropeway. We want the health and medical facilities in the area to be strengthened and a Working Group has been constituted to look into the proposal for an Institute of Medical Sciences. We want to strength the infrastructure of roadways. Recently roads are being converted to National Highway standards. We also want you to get greater benefit from your coal reserves. The Geo-technical surveys must be expedited. At present only 25 per cent of the area has been surveyed. This has to go up to at least 75 per cent in a short time. There is vast scope for diversifying agriculture-based industries. With more imaginative marketing the handicrafts will have far greater sale in the country and even abroad. Utmost care should be taken to conserve the authenticity of designs.

The Council must bear in mind the need for constant monitoring of the progress of projects. Enthusiasm in the formulation and sanction of projects is not always sustained in their implementation. While the primary responsibility of this will be on the State Governments, the North-Eastern Council must constantly be on the look out for delay, slackness and other problems which may arise. I am told that even simple matters like land acquisition for projects get delayed. It is possible that the regulations of land tenancy vary among the different States of the region. But the States should show more interest in their quick resolution. The projects are meant for their own development. I urge the Chief Ministers to evince personal interest in these matters which are said to hold up quick clearance of projects..

Another area where we must be vigilant is ecological and environmental well-being. All over the world, and in many parts of the country, common desire for immediate results has harmed the long-term interests of the State as well as the country. I have been told about the denudation of forests on the hill slopes in the North-Eastern region, because of road construction and other projects. Roads are to be made but they should be made in such a way that they do not ruin the ecology of the hill areas or encourage landslides and other such calamities.

I have been receiving complaints that many species of wild-life are now in danger because of indiscriminate felling of trees and poaching. The North Eastern Region is a rich repository of plant life. For ultimate prosperity the preservation of flora and fauna of this region is as important as starting of industries and agricultural programmes. Decision makers should always keep in mind their answerability to the future

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*Inaugural Address at the Special meeting of North-Eastern Council, at New Delhi—December 22, 1980.

The Council and indeed all the Governments of the region should make the people aware of the common heritage of our country. This can be fostered in great measure by properly planned schemes of tourism. I refer not only to the inflow of tourists to this region, which no doubt has to be carefully fostered, but also facilities and encouraging of people of this region to visit other parts of the country. The North-Eastern Council could play a very useful role in this also.

Region and Nation

The region has witnessed a great deal of turmoil in recent years. The agitation in Assam and other parts of the region and the killings in Tripura have caused much disquiet in the whole country. They have also not helped national integration. Indeed the preaching of narrow loyalties is against the interest of us all. India is known for traditions of hospitality and goodwill as also our willingness over the centuries to assimilate all that is good everywhere else. Indian culture has followed an open-door, open window policy accepting many ideas and influences from other civilisations. The same spirit of tolerance has marked our attitude to people who came into our country and shared whatever we had to offer. We have also seen the heart-warming spectacle of Indians contributing to development abroad. They have become full partners in the lives of those countries.

The agitators unfortunately have not understood this vital ingredient of our national genius. We have shown a great deal of patience in spite of the strains, but divisive elements cannot be tolerated. And resort to violence has to be sternly dealt with.

In spite of the year long agitation, the blockade of oil and timber going out of the State and disruption of the administrative machinery, the Government was able to ensure adequate supplies of essential commodities to the people of the region. On occasions there were some shortages, but on the whole the people's needs are met. I should like to congratulate the officials who were responsible for this notable achievemet against heavy odds. However, without the right political and social environment, it is difficult to achieve development.

I don't have to tell you how much the economic loss the Assam agitation has caused to Assam itself and to the nation. In Assam and in Tripura, Manipur and Meghalaya, the development process has slowed down because of the diversion of the energies of the people and the Government. Although we have made special efforts at great cost to ensure essential inputs, important projects have been considerably delayed. It is ironical that there should be scarcity of petroleum products in the North East.☐

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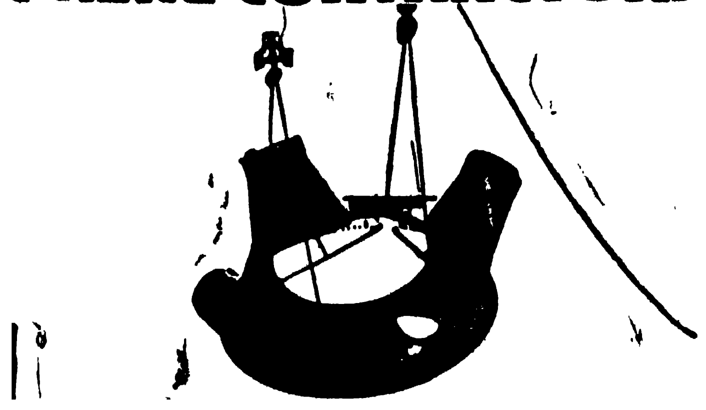

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   Calcutta.
7. Banana & Fruit Dev. Corp.
   Madras.
8. Bharat Aluminium Co. Ltd.
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9. Bharat Brakes & Valves Ltd.
   Calcutta.
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12. Bharat Earth Movers Ltd.,
    Bangalore
13. Bharat Electronics Ltd.,
    Bangalore.
14. Bharat Gold Mines Ltd.,
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15. Bharat Heavy Electricals Ltd.,
    New Delhi.
16. Bharat Heavy Plates & Vessesls Ltd.
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17. Bharat Leather Dev Corpn. Ltd.
    Agra.
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    Bombay.
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    Calcutta.
23. Bharat Wagons Ltd.,
    Muzaffarpur, Bihar.
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    Goopalapara, Assam.
25. Braithwaite & Co. Ltd.,
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26. Bridge & Roof Co. (I) Ltd.,
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27. Burn Standard Co. Ltd.,
    Calcutta.
28. Cashew Corporation of India,
    Cochin.
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    New Delhi.
30. Central Coalfield Ltd.,
    Ranchi.
31. Central Cottage Industries
    Corpn. (I) Ltd.,
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32. Central Electronics Ltd.,
    Sahibabad. (U.P.)
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    Howrah (West Bengal).
34. Central Inland Water Transport
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    4, Fairlie Place, Calcutta.
35. Central Mines Planning & Design
    Institute Ltd., Rachi.
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    New Delhi
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48. Engineering Projects (I) Ltd.,
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    Udyogmandal P.O. Kerala.
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    Corpn. (I) Ltd.,
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67. Hindustan Machine Tools,
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69. Hindustan Organic Chemicals Ltd.,
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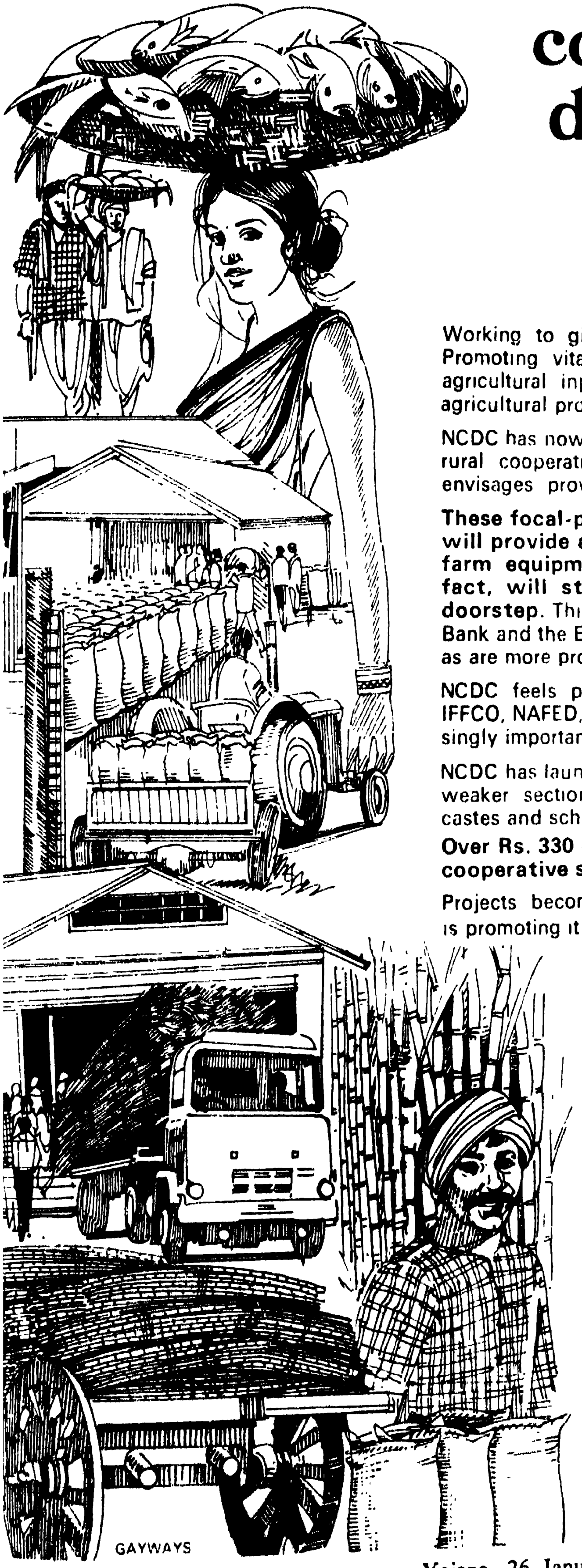

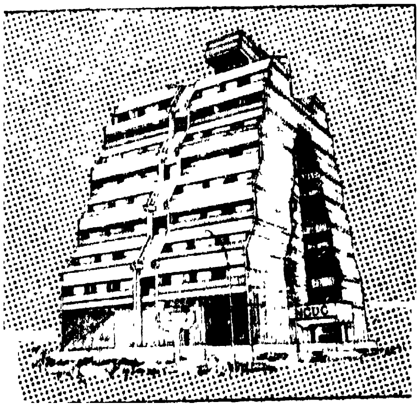

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NCDC feels proud to have promoted cooperative organisations such as IFFCO, NAFED, PETROFILS and many more, which are playing an increasingly important role in the national economy.

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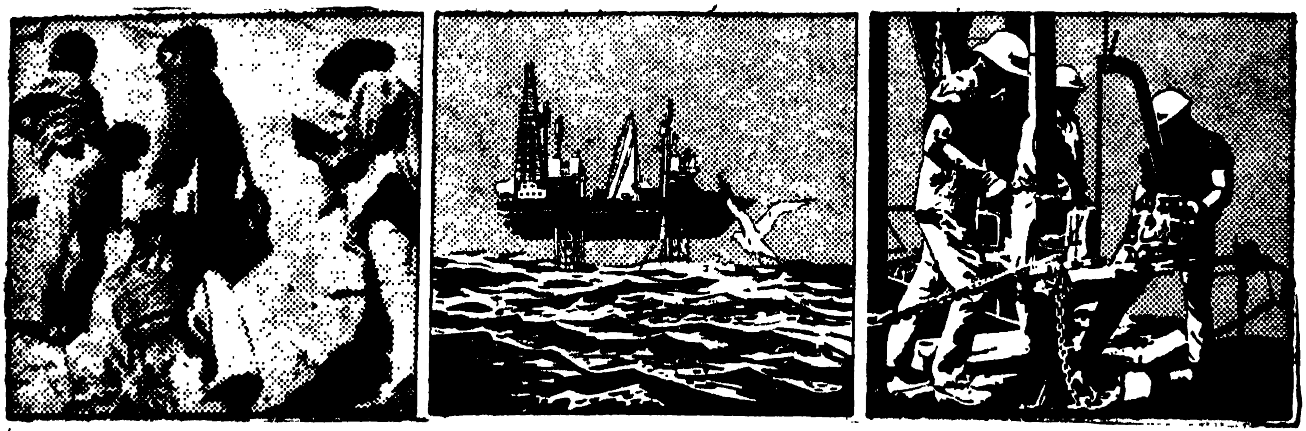

ONGC goes all out for oil

Activity in ONGC has gained a new pace—reflecting a great sense of urgency in finding more oil. According to plans, 356 exploratory wells and 535 development wells will be taken up for drilling within the next five years. 4 more mobile rigs and about 60 fixed offshore platforms will be added within this period and nearly 400 km sub-marine pipelines will be laid—enabling ONGC to produce over 50 million tonnes of crude oil from offshore and over 20 million tonnes from onshore during the 5-year period. This will mean a foreign exchange saving of over Rs. 15,000 crores.

ONGC also envisages a 6-fold increase in gas availability—from 2 million cubic metres per day in 1981 to 13.6 million cubic metres per day by 1985. ONGC's LPG plant at Uran is about to be commissioned and will significantly increase supply of cooking gas.

New thrusts are being made in looking for oil in deeper waters, deeper horizons below the ground, in subtle traps and so on. R & D efforts are being augmented with greater attention to enhanced recovery of oil so as to increase the percentage of recoverable oil through appropriate techniques.

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Today Pragati Maidan is a bustling centre of activity. A series of commodity fairs–National Handloom & Khadi Fair, National Handicrafts Fair and National Consumer Goods Fair—were tremendous successes. And more fairs are in the offing.

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With over 3000 Indian and foreign participants, the fair will be the most colourful event of 1981. The Fair, to be held from November 14 to December 4, 1981 will help promote trade amongst developed and developing nations and also encourage new investments in India and the third world countries.

Pragati Maidan
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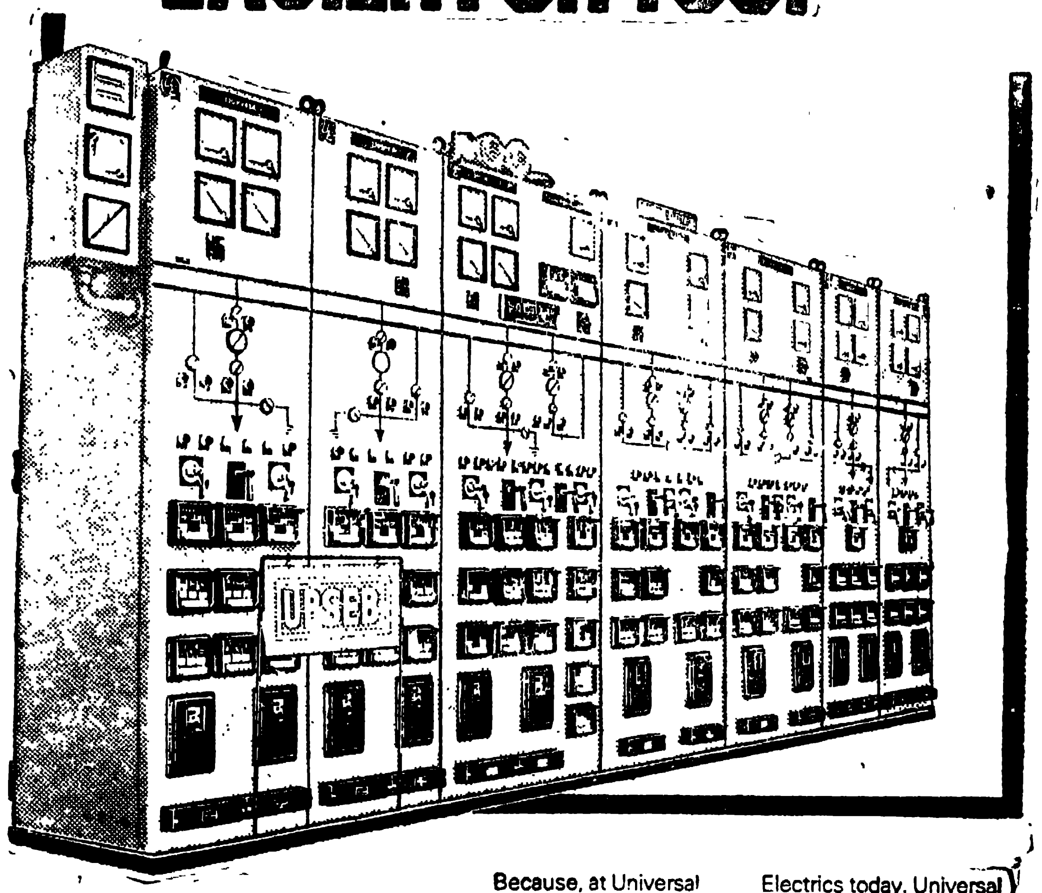

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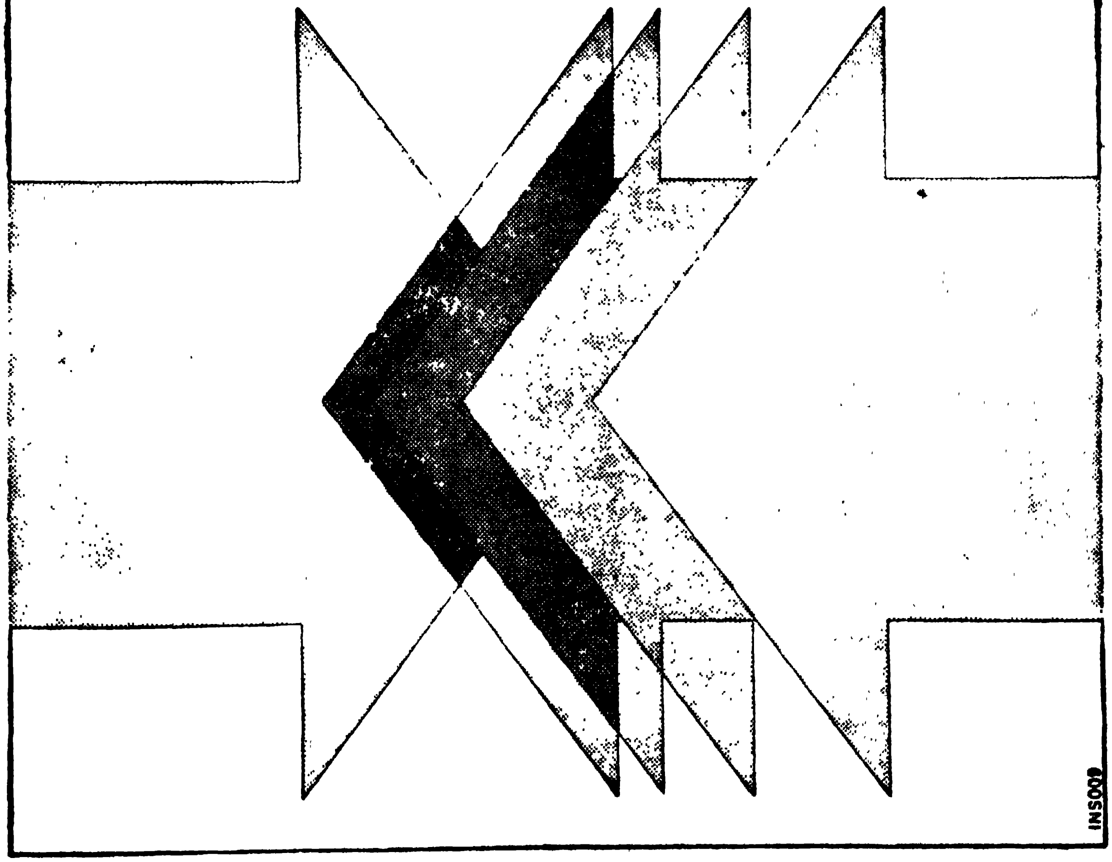
—Samuel Taylor Coleridge



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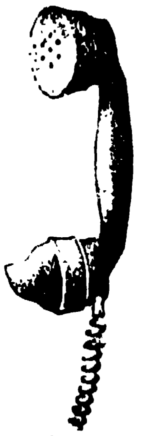

The setting up of Hindustan Cables Limited, Hyderabad Unit, a Government of India Undertaking established with an outlay of Rs. 7.5 crores for manufacture of underground telecommunication cables required by the P&T Department is a major step forward in the all round industrial development of Andhra Pradesh.

This project was completed in a record time of 2$\frac{1}{2}$ years and commissioned in 1974. In the 4th year of its production (1977-78) HCL not only touched full levels of production but exceeded the installed capacity. Today HCL provides employment to 1000 workers, more than 99% of them being local people.

HCL earned profits from the 2nd year and declared minimum ex-gratia of 8.33% in the 3rd year of its production in 1976-77 and has since paid ex-gratia of 20%, the maximum permissible.

HCL's performance at a glance :

Production	**8.64 lakh conductor k.m.**
Sales	**19.74 crores**
Exports	**0.45 crores**
Profit	**1.82 crores**

HCL cables help the P&T Department reduce their imports of cables resulting in the saving of valuable foreign exchange of about Rs. 8 5 crores per annum HCL cables are also being exported since 1976-77 and have been well received

This industry is also helping the local small scale enterprpreneurs by encouraging their products. 7 ancillary units have come up for its vital raw materials. Ancillary products with nearly Rs. 2 crores per annum are supplied by these units.

A Research & Development Unit for the Company is coming up at Hyderabad with an outlay of about Rs. 5 crores.

An expansion project of Rs. 3.18 crores is almost over and further expansion schemes include a Township costing Rs. 3.6 crores and a 30 lakh CKM Expansion Scheme of Rs. 50 crores which has an exployment potential of 1500.

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HCL 80-81

TRENDS

Working of CIL

ACCORDING to Newspaper reports Fazal Committee on Public undertakings has recommended that Coal India Limited "may be wound up" and the current four subsidiaries of CIL should be reorganised to operate as independent companies. The panel, which studied at great length such problems as power shortages and deteriorating industrial relations, has suggested that captive power generation should be made a part of the future coal mining development programme and a Central Security Force on the lines of the Railway Security Force be created. The expert panel has further suggested that a high-level coal planning and monitoring panel should be immediately set up for monitoring and clearance of new projects.

In its report, submitted recently to the Prime Minister, the Union Finance Minister and the Planning Commission the panel has stated that Coal India Ltd., as a holding company concept has not proved to be satisfactory. If by the end of the Sixth Five Year Plan, the coal production is to touch a figure of 157 million tonnes and 400 million tonnes by the turn of the century, a comprehensive and responsible set-up would have to be established to fulfil the task. According to the concept worked out by the panel the new independent companies should be made fully responsible for production planning operations, sales and turn-over quality of production and profits.

On the power front, the panel has commented that coal companies have lost considerable production on account of power shortages. To avoid this, in the future all mining areas when developed should have their own power.

On industrial relations, the committee has suggested that central police force on the lines of Railway Police Force be created for the coal sector also.

NPCC Incentives for Family Planning

THE National Projects Construction Corporation, a Government enterprise, has launched an incentive scheme for the promotion of family planning among its employees. According to the scheme, the employees and workers borne on various cadres who undergo sterilisation after having two or three surviving children will be allowed a special increment. This increment will be in the form of personal pay not to be absorbed in future increases in pay either in the same post or on promotion to higher post

Rural Housing Survey

THE Housing and Urban Development Corporation Ltd. recently carried out an evaluation study of the houses constructed with its loan assistance at Horahally village near Bangalore, Karnataka. The total cost of house per unit provided to the allottees was Rs 4000, the site was provided free by the State Government. Each house had a room, a hall, kitchen-cum-store, bath verandah in front, courtyard in front and rear. Of the allottees 67 per cent belonged to Scheduled Castes and Scheduled Tribes. Over 8 out of 10 allottees were agricultural labourers or workers in local Bidi industry.

All of them belonged to economically weaker section with average monthly family income of less than Rs. 150, though the eligible limit for allotment was, monthly family income not exceeding Rs. 350. As expected the allottees once allotted a durable house made their improvements in the house like cement flooring etc. and invested on an average Rs. 3000 per house. During the survey, overwhelming majority of allottees considered the street lights adequate though they complained about the kutcha drainage in the village and lack of street cleaning arrangements.

The HUDCO financed during the last three years over two lakh rural houses at a project cost of about Rs. 74 crore with a loan commitment of over Rs. 34 crore.

Postal Life Insurance Limit Raised

PERSONS who are eligible to take Postal Life Insurance (PLI) policies can now insure upto Rs. 75,000. So far they were eligible upto Rs. 50,000 only. The PLI is open to all employees of Central and State Governments, Defence Services personnel and employees of all Local Bodies, Universities and Government aided institutions.

The rates of bonus are the highest in PLI i.e. Rs. 40 per thousand of sum assured per annum on whole life policies and Rs. 31 on Endowment Policies. Bonus is paid on paid-up policies also. The value of PLI policies in force was over Rs. 385 crores and there were more than seven lakh policy holders at the end of March, 1980.

Consultancy Earnings Up

EXPORT earnings from consultancy services registered a sharp increase of 57 per cent during 1979-80. Against Rs. 14 crore in 1978-79, exports during 1979-80 touched record level of Rs. 22 crore. This was against stiff competition from well established consultancy organisations from the developed countries.

The range of services which the Indian consultancy firms provided include feasibility studies, project formulations, executive selection, detailed design engineering, project management, supervision of construction and commissioning services for projects like sugar, cement, thermal power, steel plants, textile mills, pulp and paper, irrigation and ground water development scheme, multi-storeyed complexes, management consultancy services and computer software.

Some of the major contributors to the exchange earnings include EIL, Tata consultancy services, MECON, NIDE, Dasturs and Development Consultants. These and other agencies have covered a wide range of markets in South-East Asian countries such as Indonesia, Thailand, Burma, Sri Lanka, Philippines, Afghanistan; WANA region including Iran, Iraq, UAE, Oman, Algeria and Saudi Arabia and countries in Africa. Indian consultancy firms have also made a dent in the developed countries especially the USA, UK, West Germany and Holland. Consultancy export to these countries was mostly in the field of computer software. ☐

National Textile Corporation

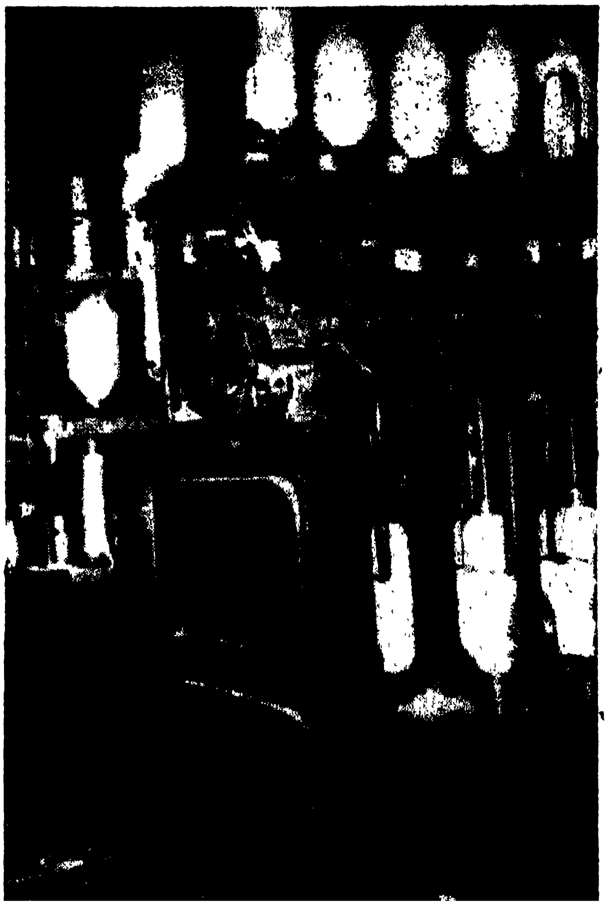
(Contd. from cover II)

These mills provide direct employment to approximately two lakh persons.

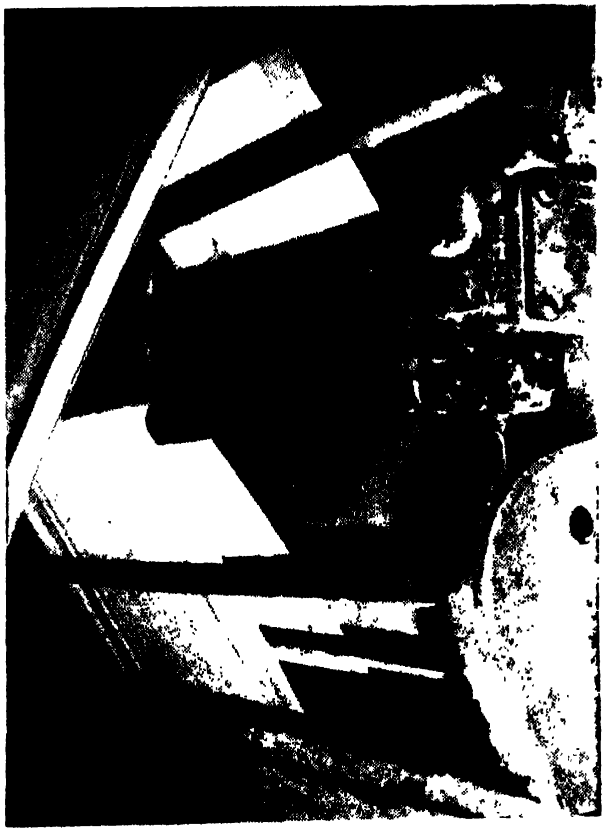
Presently, the NTC mills produce on an average around 80 million metres of cloth and 5.50 million Kgs. of market yarn for the market every month. They are expected to produce 65 million Kgs. of market yarn and 950 million metres of cloth during 1980-81. Production by the end of Sixth Plan is expected to be 1,100 million metres of cloth and 90 million Kgs. of market yarn.

Nationalised mills are producing about 97.67 per cent coarse and medium varieties which are used mainly by weaker section of the society and are supplied by the NTC at reasonable prices. These mills have also produced large quantities of controlled cloth to help the poor people.

The Corporation have a very crucial role in the development of handloom industry by ensuring supply of more and more quantity of yarn of improved quality at competitive prices. In the next five years, the NTC will be able to supply to decentralised sector 109 milion kgs. of yarn per annum against the present figure of 70 million kgs. per annum. Nearly 55 per cent of the sale yarn produced by the NTC mills is supplied to the handloom weavers. Nearly one million persons are working in the cotton handloom industry, on the yarns made available from the NTC mills. Another important area in which the Corporation is helping the handloom sector is in meeting some of their products through its directly managed showrooms.



The total installed capacity of NTC is 153.2 million spindles and 47,787 looms



The value of fabric exports made by the NTC mills during 1979-80 is Rs. 6.20 crores.

Due to various constraints the NTC mills have been incurring losses till 1979-80. During the first six months of 1980-81 they made a profit of Rs. 2.31 crores. The mills are being modernised in a big way

The mills pay excise duty of the order of about Rs. 20 crores every year. The NTC also pays back over Rs. 11 crores by way of interest on Government loans as on March 31, 1980 modernisation schemes to the extent of Rs. 100 crores have been implemented . An amount of Rs. 220 crores is proposed to be utilised for the purpose during the 6th Plan period.

The National Textile Corporation mills are expected to produce 65 million kgs. of market yarn and 9.50 million metres of cloth during 1980-81.

There are 17 Divisions and 377 shops directly run by the NTC distributing to the public over Rs. 1.50 crores worth of fabrics every month. ☐

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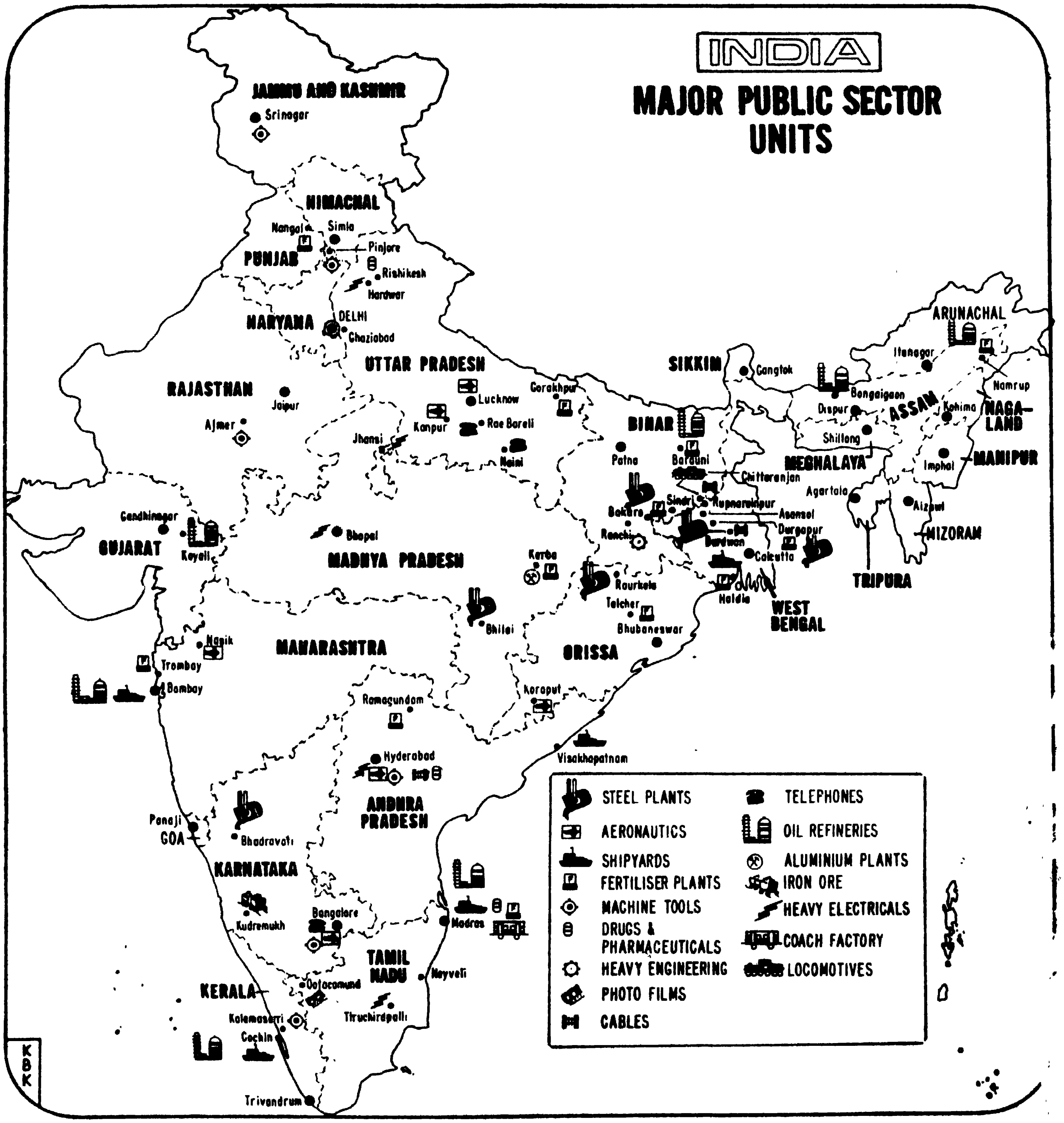

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Duty, Not Charity

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conscience, create an awareness among the
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Vorld Can Learn

[illegible] racy move- [illegible] at the age [illegible] uplift of the people steeped [illegible] and superstition through the medium of education. The most significant work of her life was the Literacy House at Lucknow. The Young Farmers' Institute set up as a wing of Literacy House imparted education together with a knowledge of food production, modern agricultural practices and allied rural industries. Likewise, her Family Life Centre sought to propagate the small family norm and promote healthier, economically self-reliant and educated families.

"She lit a candle so the world can learn," was the tribute paid to Mrs. Fisher when she was presented with the Humanitarian Award of the Variety Club International of the United States. She also received C. J. Watumull Memorial Award and the Ramon Magsaysay Award in recognition of her crusade against illiteracy.

Established in 1953 in a verandah, Literacy House is today a 20 acre complex of class-rooms hostels, office buildings, staff quarters, an open-air theatre and children's parks. Over the years, Literacy House has evolved a comprehensive programme of service, training, publication and evaluation of Literature for adults. It has spread to some of the remotest villages of India in response to the people's need for occupational skills. This is the meaning of functional literacy as Welthy Fisher understood it. ☐

Welthy Fisher pioneer of Literacy movement in India

Shri S.C. Bhatt Retires

Shri S. C. Bhatt, Director, Publications Division retired from Government service on December 31, 1980.

At a farewell function arranged in his honour, Shri Vasant Sathe, Union Minister for Information and Broadcasting and Shri A. K. Datt, Secretary, Ministry of information and Broadcasting paid handsome tributes to Shri Bhatt for his three decades of dedicated and distinguished service in various media units of the Ministry.

CORRIGENDUM

In our 26 January 1981, Issue Page 91, the article entitled "Facts about our Petroleum and Petrochemical Industries" was written by Shri S. L. Khosla, Joint Secretary, Ministry of Chemicals and Fertilisers. The omission of his name is regretted.—Editor

YOJANA

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Yojana seeks to carry the message of the Plan but is not restricted to expressing the official point of view.

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Duty, Not Charity

The current year is being observed as the International Year of the Disabled, the purpose being to arouse the social conscience, create an awareness among the public of the problems and needs of the physically or mentally handicapped persons and bring out their physical, mental, social and economic usefulness of which they are capable. It is expected that all-out efforts will be made this year to provide such help to the disabled as will enable them to cope independently with their problems and to become fully integrated and useful members of the society.

Any physical or mental defect can cause a person to become a handicapped individual who may be normal in all other respects But this handicap, more often than not, subjects him to psychological stresses and tensions and creates in him a sense of insecurity and a feeling of mistrust towards people around him and society in general. This feeling manifests itself in an attitude of intolerance, despair and self-pity. The unfortunate aspect of his dilemma is that the disability which afflicts him is over-emphasised and viewed out of context, whilst the normal features of his overall personality are overlooked. We tend to judge such a person by what he has not got and not by what he has got by way of latent natural talent. Towards such persons our attitude is either highly protective or of utter indifference. Either of those two is enough to make himself unfit to stand up to the challenges of life that face him As Helen Keller has said, "a person who is severely impaired never knows his unhidden sources of strength until he is tolerated like a normal human being and encouraged to shape his own life". The International Year of the Disabled is dedicated to the task of bringing home the truth of these prophetic words to each one of us.

The modern age concedes to the handicapped not only the right to live but also to work and become a contributing member of the community. The very fact, that by proper therapeutic treatment and loving care most of the handicapped persons can be made self-reliant, is in itself a very strong argument for ensuring that such people get the benefit of the great advances made in the fields of science and technology.

Till now, no authentic statistics exist on the number of handicapped persons in India because no national survey has so far been made. But it is roughly estimated that about six million people may be in a disabled condition. Schools, homes, vocational training centres, sheltered workshops, therapy centres, guidance clinics and referral centres are no doubt there, but their number is very small. Existing institutions are inadequately equipped and enough number of professionally trained persons are not available to run them. We urgently need trained and dedicated workers for the care and rehabilitation of the handicapped. The idea of 'community chest' where all available community resources, both in men and materials, are pooled together and made available to those who need them most, is yet to become a part of our way of thinking and functioning. We do not even have a national directory of the institutions, both governmental and voluntary,engaged in the service of our disabled brothers and sisters.

Contd. on page 15

Our Duty Towards the Disabled

Indira Gandhi*

DISABLEMENT is of many kinds. A handicapped may be congenital, it may be the consequence of an illness or it may come about as a result of injury, war, rioting or other violence. But in this age of technology many disabilities are caused by road and air accidents or in working with machinery. We do not yet have figures or other full information regarding our own handicapped people, but the United Nations takes 10 per cent of the total population of every county as handicapped. Ten per cent of the population is a huge figure, specially in India. With our present resources we cannot possibly provide all the care to all of them or even a small part of them. Yet we must acknowledge our duty towards them and make a beginning.

Some work has been done. We have a 3 per cent reservation in public employment and in spite of extreme limitation of resources we have increased scholarships for the disabled people almost a hundred-fold. A twelfth of the Central Government Budget on Social Welfare goes for the reservation of the handicapped. I am deeply conscious that neither this nor the various national institutions for the blind and the handicapped are anywhere near adequate. The blind and deaf and mute do have organisations to speak for them but there are many other kinds of handicapped which are little known and facilities for which are either non-existent or negligible.

I said earlier about our not having the full statistics but we are making an effort in this Census—the 1981 Census—to cover the totally handicapped, either totally blind, totally dumb or anything like this. We are also having a special sample survey of the handicapped through the National Sample Survey Organisation.

We have a number of people on the live registers but it is very small compared to the people. Of these a large number has been provided employment and we think the rest will be covered this year but as I said it is a very small proportion of the total.

We have just seen in this exhibition paintings by spastic children and foot and mouth artists, candles and other handicrafs made by blind and other disabled, physically or mentally disabled children. All this work is highly commendable and I hope that all of us here and many others will find for them a growing market.

We are taking special measures to improve safety in mines and to ensure that in designing machinery special care is taken to minimise any possible hazards. Initially thrashing machines caused many accidents in our countryside. Some dangers are avoidable but there is a certain indiscipline in our ways, and I am sorry to say not much thought is given for inconvenience caused to others.

Habits, each one small in itself, can cause trouble. For instance if a banana skin, other foodstuffs or such other articles are strewn about people slip and get hurt; besides they attract flies and spread disease. We also do not give attention to quarantine and such elementary health precautions in cases of infectious and contagious diseases. Because of complete lack of traffic sense and also because of negligent driving, not only on the part of truck or car drives but even people who drive scooters, cycles and so on, people get killed on our roads in increasing numbers. Not only is there jay walking, which means that you walk anywhere on the road but people also rush towards or between moving vehicles and are generally careless in handling machinery and other equipments.

So much for India. What about the industrialised advanced nations? I am sure you have heard of victims or the drug Thalidomine, which causes the birth of armless children or the deformities caused by certain chemicals not only on the sprayers but tragically affecting their unborn children.

We have launched national campaigns for the prevention of blindness, of polio and of leprosy. Leprosy not only deforms but gives rise to big psychological problems. It is now well within our ability, medically and administratively, to eradicate this disease. But early diagnosis is crucial. If only people could be imbued to give up their prejudices as regards this dreaded disease and if only those who are affected are willing to admit to it in the very early stages, this can be quickly and completely cured. Fifteen per cent of our blindness, I am told, is preventable, merely by including green vegetable and edible leaves in the diet of children or by taking simple eye-care.

Human Will-power

I am glad that the number of Eye Camps organised by official and voluntary organisations are increasing in number and providing relief to invalid people. Polio, I think, can now be avoided by taking preventive steps and we all know that President Roosevelt was a polio victim but he could keep a very strenuous daily routine. Another case, not of polio but of paralysis was of Mary Verghese—perhaps most Indians have heard of her—a brilliant young doctor in Vellore

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*Prime Minister's address inaugurating the International Year of Disabled Persons—New Delhi, January 5, 1981

Hospital, who had gone for a picnic; the bus overturned and she broke her spine. But she went through a rigorous training and is an internationally known surgeon, but of course she has to operate sitting in a wheel-chair.

We have passed legislation and will not hesitate to do again whenever necessay. In order to give more comprehensive care for the handicapped the Ministry is thinking of a basic law on different aspects of the rehabilitation of the disabled. However, legislation is of limited help. Apart from the legal aspect there should be more widespread recognition amongst likely employers that the disabled can be full members of society. If they cannot tackle one job they are capable of something else and should not be deprived of the opportunity to support themselves. They do not ask for, nor should any thing be done out of charity. It is their right as citizens and it is in the country's interest. Sometimes children and even grown-ups throughtlessly ridicule the diabled or deformed people. This is cruel and must not be allowed. What is essential is to create public consciousness, not in the sense of pity but compassion which is deeper and which leads to positive action. I feel strongly that this awareness and concern should be created from the earliest stages of education and our children should be taught about health education, road sense, cleanliness and other preventive actions and these should from a part of our textbooks.

Voluntary organisations can help a great deal in bringing about such a psychological change in society. I hope that the International Year of Disabled Persons will be used as a year when Government, voluntary agencies and individuals will work jointly to transform the outlook of the general public and to inculcate in disabled people themselves hope, courage and determination to succeed.

This year for the Disabled is really a salute to the indomitable spirit of man. It is one of the miracles of nature how handicapped people develop other senses and can do all manners of work with or even without training. I think you know that the great composer Beethoven composed some of his most wonderful works when he was totally deaf. Homer towards the end of his life was quite blind but he went on drawing and writing. One of my teachers, art teacher Vinod Bihari Mukherjee, who recently died, even when he was teaching us, he could see only very very little, only by putting his papers so close to his eyes, and afterwards he was almost totally blind, but he continued to paint and to teach.

I am often asked which great person has impressed me the most. Great men and women naturally make an impact on their times and earn their place in history. But I do feel deeply moved and impressed by the enormous courage and physical strain which so many of the handicapped undergo in order to hold their own in this highly competitive and often cruel world. The lives of these people mostly anonymous and unsung are no less heroic than many famous ones. Some names are known. You know of Helen Keller. How, in spite of being blind, deaf and dump she trained herself to read, to lecture and she was a guest in this house and I remember her coming. She had already read all my father's books and when I greeted her, she got off the car, she felt my face and immediaely said, "You are Indira."

Another great favourite and inspirer was a youngman called Douglas Border. I do not know whether you have heard of his story. This was a young pilot, who during the last World War lost both his legs quite up above the thighs, but he felt that his life was flying. He was in Air Force and he was determined to remain in the Air Air Force. And after taking his training, the Commander said, "Well you can fly but we are very sorry that the rules of the Air Force do not allow us to take you back". He said, "You make your tests more difficult for me than they normally are. If then I pass you have no right to deny me." He not only passed, he brought down 152 German planes. He was a Squadron Leader. He was shot down and made a prisoner. He escaped three times from his prison and finally was rescued by the Americans when they came into France. His young wife pleaded with him that he had done enough for his country but he said, "The war is not over. I am a member of the Air Force." And ultimately when Victory Day was celebrated he led the parade in the plane and all of London came out to saluate him. There are many others. None of these people asked for help, nor was it given. By sheer grit and perserverence they rose to the top and will remain shining examples for all times.

I am glad in formally inaugurating the International Year of Disabled Persons in India. May it be the harbinger of new opportunities for these brave people, and may we also have the will and inculcate it in those who do not have the desire to help them and to build up the institutions, give them the equipment and the training which is their due. ☐

Investment Subsidy in N-E States

THE rate of subsidy in the North-Eastern Region has been raised from 15 per cent to 20 per cent. The question of increasing the ceiling of such subsidy from Rs. 15 lakh to Rs. 20 lakhs is also under examination of the Government.

This was announced by Dr. Charanjit Chanana, the Minister of State for Industry while participating in the NE Council discussions recently held in New Delhi. He emphasised the vast potential for paper production in the region and said about Rs. 180 crores have so far been invested by the Central Government in the three paper plants at Nowgong, Cachar and Nagaland. When completed, the toal investment would reach Rs. 550 crores. This will lead to direct employment of 5000 persons and indirect employment to 35000 persons.

Jobs For the Blind

G. Ravindran Nair*

THE first ever school for the blind was established in Amritsar in 1887. Since then the movement for the rehabilitation and welfare of the blind has been working by fits and starts. Today in a vast country like ours with more than 8 million blind there are only 120 schools for the blind. And most of these schools are scattered in the big cities and towns of the country, catering only to the urban blind children.

The Directive Principles of our Constitution provide that all the children shall receive free and compulsory education upto the primary level. But, strangely, it has not yet dawned on those concerned that the children of India include blind children too. It is thus sad that not even one per cent of the blind children enjoy access to education.

And even in the schools that are functioning the services provided are woefully inadequate; the children are taught traditional crafts like canework and handloom weaving. Most of the schools and institutions have yet to introduce a streamlined curriculam based on proper vocational training in order to rehabilitate the blind in proper setting. It is not enough for the blind to be employed only in sheltered workshops or in open industry. More avenues should be made available to them. Most of the 50 sheltered homes or workshops in the country are doing very useful work. One workshop in Bombay provides training and employment to over 120 blind persons. Many of the sheltered homes and workshops provide work in the traditional crafts of canework, basketry handloom weaving, candle-making etc. Institutions like the workshop for the Blind, Bombay, the Adult Training Centre for the Blind, Ahmedabad and the Blind Relief Association, New Delhi, have gone much ahead and provide training in a variety of vocations.

The Blind in Open Industry

The Special Employment Exchanges for the handicapped, started by the Government of India, have been rendering a stupendous service in regard to the placement of the blind in different industries and official establishments. The first Special Employment Exchange started functioning in Bombay from March, 1959. The National Association for the Blind started its placement service a few year earlier in 1954 with the appointment of a Placement Officer on their staff. The service was expanded in 1968 and, today, it has three Placement Officers in Bombay and two in Ahmedabad. Likewise, the Blind Relief Association in New Delhi, the Blind Boys' Academy Narendrapur and the Light Engineering Project for the Adult Blind in Guindy, Madras also have Placement Officers on their staff.

In general, the blind workers are engaged in simple repetitive jobs requiring little or no skill, jobs such as packing folding, bottle-washing, labelling assembling of parts, etc. But a few blind workers have started operating machines and telephones also.

Among the blind, the rural blind encounter the maximum difficulties in finding employment. The only training centre for the rural blind is the Tata Agricultural and Rural Training Centre for the Blind at Phansa established by National Association of the Blind in 1960. The Centre trains 50 blind persons every year. It is a sorry state of affairs that we have taken very few steps to open institutions for the rehabilitation of the vast number of the rural blind. The problem is all the more grave since the bulk of the blind live in our villages. Added to this is the problem of chronic rural poverty, with the bulk of the blind being landless; one of the best ways of rehabilitating the rural blind is to train them in agriculture, animal husbandry, poultry, piggery or goat breeding for which the poor landless blind have to be provided with land. They could also be encouraged to form co-operative societies to pursue agricultural and allied activities. This would be one of the best ways to resettle the blind in their own villages and prevent them from migrating to the cities, where when all options are exhausted, quite a few of the blind end up by joining the destitutes and beggars.

Another disturbing feature has been the unemployment of the educated blind. A few blind who have secured postgraduate degrees or even doctorates, remain unemployed or underemployed.

Regional Imbalance :

Apart from the different problems enumerated above, there are various regional imbalances in regard to the facilities provided for the blind. The services are unevenly distributed. Maharashtra, Gujarat and Tamil Nadu have a number of schools, sheltered homes, training centres, etc. while a large State like Orissa has just one school for the blind and Assam has only two.

The main reason for the haphazard growth of services for the blind has to be attributed to the absence of a systematic blueprint for their welfare. Whenever or wherever the motivation for walfare sprang from charity, the results have been dismal with the benefits reaching only a few and the unplanned and unscientific services coming to a trickle with the exit of the benefactor. It is high time that charity is supplanted by a hardheaded recognition of the human rights that the blind should enjoy with the rest of humanity. Just because they suffer from a visual handicap they do not forfeit their right to a fruitful living. The blind should get their share of education, training and employment. They do not any longer want the doles for their survival. 1981, the year of the disabled, could well be a watershed in the history of the society's attitude towards the disabled if only society could integrate the disabled humanity into the mainstream of socio-economic life.

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*Editor, Social Welfare, New Delhi

The success stories of many of the blind should change the myopic view of the employers that the blind are rather a liability than an asset. That the blind can work in a wide range of trade, vocations and jobs has been proved to the hilt by many of the blind. It is a sad commentary that even now many blind are rather a liability than an asset. That the blind workers, trained successfully as machine operators, accept jobs of folders or packers, after a long period of waiting and a great deal of frustration. What is required is an iron will to do something tangible. We must have a look at the priorities and realign them, if necessary, in order to give a square deal to our brethren.

The Jobs That They Can Do

We have also to mount a massive education campaign about the problems and potential of the blind. We have to persuade and educate the employers by practical demonstration as to what the blind can do in a variety of jobs and trades. We have to appoint more Placement Officers with different industries and public sector undertakings. People who have studied the employment avenues of the blind have found that following jobs can be done by the blind without the least difficulty:

Packing case-nailing, bundling wrapping, Assembly of component parts; Tailoring, Armature winding; Coil-winding Wire-cutting Machine operating (drilling, treading, band-saw, captstan lathe, Fly Press operating) Sorting; Bobbin-cleaning; Bottle-washing and Lift and hoist operating etc.

The educated blind could be absorbed as teachers, music teachers, lecturers, salesmen, administrative officers, insurance agents, steno-typists, broadcasters and announcers, telephone operators, public relations officers, secretaries, etc.

In order to facilitate the employment of the blind a wide range of preparatory steps have to be taken; the blind has to be given adjustment training making him accept his disability and its limitations. By developing the basic skills, mobility and communication, the blind can equip himself in a better way. He has to be taught the correct use of the white cane and develop the skills required for indoor and outdoor mobility Many countries in the West have already taken steps to remove the architectural barriers which would facilitate the mobility of the disabled including the blind There is ample scope for employing the blind in innumerable small and repetitive jobs. The Government and voluntary agencies must do everything possible to locate such jobs in industries and compel employers to employ a fixed percentage of the trained blind. In addition to placing the blind in open competitive employment, efforts should also be made to encourage them to start booths or kiosks at public places.

Side-tracking the issue

Ultimately the future of the blind and the other handicapped rests on drastic changes in social attitude towards handicapped in general. The time has come to take a fresh look at the problem and to give a rightful place to the blind and other groups of handicapped along side the rest of humanity. We can no longer brush aside the seriousness of the employment problem of the blind by side-tracking the issue, by saying we do not have sufficient avenues even for the normal people'. In fact, the blind or other groups of handicapped deserve greater attention, not merely because of their disability, but because of the prejudices which have made them second-rate citiens through the centuries While searching for solutions to the problem of general unemployment we have also to provide for tangible services for the blind, illiterate as well as educated. No society can afford to ignore a vast human potential and manpower preserved in the vast number of the blind living in our villages, towns and cities. □

Plucking the Flower From a Child's Eye

Henna Singh

EVERY year thousands of mothers throughout India notice a white blemish appear in one of their children's eyes. But they do not know that this is the tell-tale sign of vitamin A deficiency and the onset of blindness.

Ten years ago Dr. G. Venkataswamy, a famous eye specialist, of the Nutrition Rehabilitation Centre attached to Rajaji Hospital in Madurai noticed that there was a high incidence of eye ailments among children under five who came to the hospital. Further examination revealed that their diet lacked vitamin A. Every year around 6,000 children go blind in Tamil Nadu for this reason, and many more suffer from night blindness. Instead of treating these children with strong doses of medicine, Dr. Venkataswamy preferred to rehabilitate their health with a diet rich in vitamin A and proteins.

For his therapy he selected locally available low-cost food which every mother could afford. Greens are rich in vitamin A, but in this part of the world many people turn up their noses at them, both because they grow in abundance and they cost so little. The Centre set out to try and dispel the false notion that expensive foods are the best, and also taught the mothers of children referred there from the paediatrics department how to cook five nutritious meals a day on only one rupee.

The children were fed five meals of ragi (a cereal grass) and groundnut gruel, wheat and bajra flour mixture, with greens like drumstick leaves, spinach and a slice of papaya. Every Friday they were weighed and their progress recorded on the yellow cards.

Last year 267 children with vitamin A deficiency problems were treated at the Centre in Madurai, where UNICEF has given some assistance. But that is only a fraction of those who need the benefit of Dr. Venkataswamy's dietary therapy. For all its efforts, the Centre cannot reach those children out in the villages of Tamil Nadu. So now it has become a training ground for balsevikas—child care workers—who come to the Centre for short courses before returning to the villages where they are assigned to live among the people and spread their knowledge. Every balsevika can start a similar nutrition therapy programme, reaching mothers and children who would otherwise be victims of their ignorance.

UNICEF News

UCOBANK presents a cross-section of Harijan and Adivasi families freed from economic bondage.

The Backward Go Forward

In India over 13 crores of Harijans and Adivasis live below the poverty line. The Government of India is committed to improve the economic condition of these sections of our country. To restore economic dignity United Commercial Bank has come forward with several schemes to render financial assistance.

- About 80 kms away from Madras and far from the public eye, you'll catch a glimpse of Kaniappan tending his wares—Lilies ! Today, lilies are his livelihood when earlier there was none. Initiating this transformation in Kaniappan's life and the lives of 150 other Harijan families is UCOBANK Through loans for deepening of wells, pumpsets for year-round agriculture. goats, milch cows, buffaloes and even a cooperative milking yard

In the Harijan Mahalla of Abbigere village, in the vicinity of Bangalore, you'll meet Narsamma. Today she is a confident and assertive woman employed in a brick-field while her son tends sheep purchased with a UCOBANK loan UCOBANK has adopted a cluster of villages in this area and has busied itself in identifying needs and meeting them in many ways For school children the Bank's presence means a mid-day meal A luxury hitherto never even imagined before

Meet Dehu A member of the Thakur tribe in Margachiwadi—a village carved out of the ghats near Bombay UCOBANK in association with a voluntary agency has brought about a great change in this poverty infested area. To bring victual within easy reach the Bank has financed a cooperative store. Today the residents indulge in the luxury of eating rice whereas in the past they lived on 'seeds', shackled to money lenders who extorted in a 7 to 1 ratio.

A tribal borrower in Maharashtra

Punuram smiles at you from Solan in Himachal Pradesh. A born 'barera'. In short a beggar by caste. Today an individual with dignity. Punuram is 'fed' by the trees—peach, plum, nashpati, khurmani—all planted with UCOBANK loan. His village now gets piped water and has pucca housing with corrugated tin roofs, electricity and sanitation. Today, a community of 450 have commuted poverty for earning capacity and dignity.

12 kms away from Ludhiana we enter Mangat—a village of Harijan weavers. One of them is Babu Singh, now a thriving entrepreneur and an owner of 'looms' purchased with UCOBANK loans. His transition from poverty and degradation to a place in society has woven a new confidence in the lives of his neighbours

A Mouli song about the seasons, fishes and birds is punctuated with the clanging of Kalipada's tools. Kalipada hails from the Mouli tribe in Angargaria—a village in the Birbhum district of West Bengal, predominantly occupied with bamboo. Kalipada is assisted by UCOBANK for bamboo culture and tools. There are even a dozen gobar gas plants installed with UCOBANK finance.

Last but not least, witness the Khonds—a tribe inhabiting the foothills of Kirandimala hills in Ganjam, South Orissa. Their livelihood ? Firewood primarily with a trickle from mango, papaya, custard apple and tamarind. Till a voluntary agency and UCOBANK entered, the story of the village was cruel exploitation. Every villager, every tree, every patch of land was in the clutches of moneylenders. Even fruits were wrenched from trees as 'interest' on loans It's changed. 75 villages in this area have received loans. Past debts have been paid. Almost every single individual today has a savings account in the bank.

Herein ends the real-life story of seven families representative of seven communities. seven cultures, seven languages Today, on a better footing and a new confidence to face life's challenges

Reaching the Unreached

Susan Hammerman

MORE than 350 million of the world's 500 million physically and mentally disabled people are out of reach and out of help.

The study Rehabilitation International recently completed for the UNICEF on the situation of handicapped children in the developing regions of the world, focused upon what was happening in the lives of disabled children and their families, on how they were affected in their own right.

The main findings of the study can be briefly summarized. Millions of children are severely disabled by impairments which could have been prevented. In the case of many impairments, the extent of disability that ensues is often multiple, and is more functionally handicapping than would have been dictated by the impairment alone. Very often, such children are not identified early enough in their lives for action to be taken which could alter their progress towards severe disability.

The interruption, and distortion, of the normal process of child development that frequently results from the reactions of family and community can create a far more serious problem than the functional or cosmetic consequences of the impairment itself. Children who are not fed as well as their brothers and sisters, who have few opportunities for social interaction or education, and whose mobility is restricted, suffer from a serious interruption of the stimulation their development requires. They are rarely seen in schools, in day-care centres, at health clinics or social events. When these problems are added to the functional limitations they already experience, the outcome can be multiple handicapping.

Most of the programmes for improving the lives of children and families in developing countries—programmes such as primary health care, better nutrition, basic education, famiy planning and social welfare—could valuably incorporate activities to prevent impairments in children and their early treatment. But, sadly, these programmes rarely do so. What is more appalling is that experience suggests that, even if they did, the child with a disability would be the last and the least likely to benefit from them. Within the family, it is often the disabled child who is denied the chance for better food, education, medical care or social and intellectual stimulation, even when these benefits are available to his or her own brothers and sisters.

Another finding of the study is that there is a pervasive absence of information at every level concerning the causes of disability, its prevention and the possibilities of rehabilitation. An equal wealth of misinformation and superstition exists about the problem, which perpetuates actions unhelpful to the disabled child during his or her formative years.

Finally, the interrelationships between child disability and poverty are far more extensive and damaging than had ever been anticipated. The principal causes of disability—inadequate nutrition, difficulties at birth, infections and accidents—are far more likely to affect the ignorant and the impoverished. These are the people with least access to the existing services. At the same time, the birth of an impaired child, or the onset on disability in the family, placed additional demands on its limited resources, and tends to thrust the family deeper into the morass of poverty. This is a fact we have seen repeated in every developing region of the world.

Disabled children like all other children, must be given the opportunity to grow. Surely they need no less food, no less socialization and no less training than other children? Yet strangely enough, far more often than is realized, that is precisely what they receive: less attention, less stimulation, less education, less medical care, less discipline and sometimes less food. It would be difficult for any child to develop under such circumstances, even without a physical or medical impairment.

The most important early advice that can be given to a family is that they should help the disabled child to grow, and if possible they should be shown how this will soon bring about the positive results that it would for any child. There is also a need to develop a simpler system for detecting developmental delays among children.

The only way to be certain that children with impairments are recognized as early as possible in life would be to help all the people whose jobs bring them into contact with young children to be aware of disability's early indicators. This requires training in causation, in simple detection and in appropriate guidance for the family. The subject should be introduced into the curricula of teachers, health and social workers, clergy, and those responsible for planning services for children.

Our hope for the new UNICEF strategy is that it will translate into a long series of actions which will lead to less disability among children the world over, and greater likelihood for all children to be able to enjoy. ☐

(UNICEF News)

Award for Yojana (Gujarati)

Yojana (Gujarati), published from Ahmedabad has bagged a second prize in the competition for excellence in printing and designing organised by the Gujarat Printers' Conference recently. The prize was in the form of a gold plated memento of 'Vadnagar Toran' awarded in the letterpress handfeed Treadle-Cylinder Category for Gujarati periodicals. No first prize was given to any Gujarati periodical in this category

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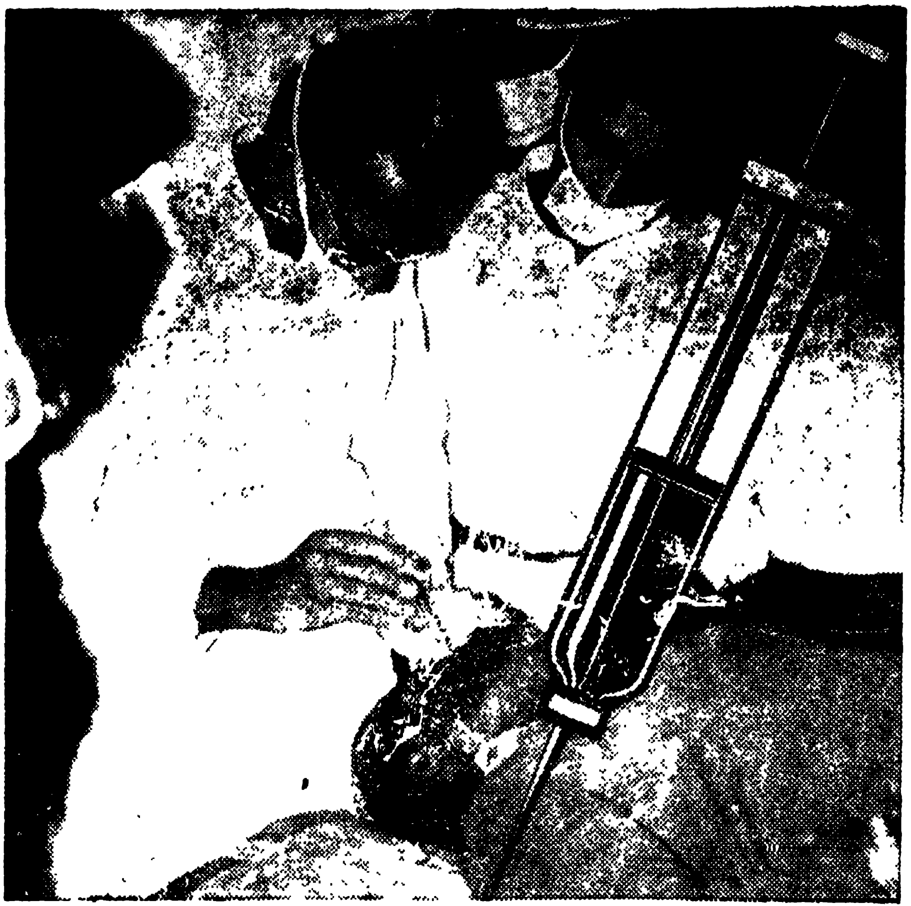

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Malnutrition and a Child's Mind

Myron Winick

IN the past decade it has become established in the public mind that severe protein-caloric malnutrition in a young child leads to permanent mental retardation. It appears from recent research that the condition is generally reversible, if the child grows up in a better environment.

Kwashiorkor, "the disease of the displaced child" is one of the chief causes of death among children in developing countries. This disease, also known as infantile marasmus, is the most common cause of death in infants throughout the developing countries.

Marasmus is caused by a deficiency of both protein and calories in young infants who are not breast-fed. The disease characteristically occurs when the mother can't or won't breast-feed, and attempts to bottle-feed in an environment where this is impossible. Thus the infant is given a formula feed which is contaminated, and often over-diluted because of its expense. The result is diarrhoea and slow starvation. The infant slowly becomes emaciated and ceases to grow.

Reports from various countries, established that these children not only did not grow during the period of malnutrition but that even if enough food were provided later on, these children remained stunted for the rest of their lives. A subsequent study by a Mexican paediatrician demonstrated that the earlier in life the malnurition occured, the more severe the growth failure, and the more likely it was to be permanent.

Reports from South Africa, Czechoslovakia, Mexico, Jamaica, India and other countries established that children who had been malnourished early in life were retarded in their mental development and that this retardation was also permanent.

Thus by the beginning of the last decade it was known that children malnourished early in life were not only stunted in overall growth but that they had smaller brains containing fewer cells, less myelin and fewer connections between nerve cells. In addition they were retarded in their development, showing lower I.Q. scores, poorer school performance and disturbed interpersonal relations. With 300 million people in the world who had suffered malnutrition in early childhood, this was indeed a bleak picture.

Investigators in Czechoslovakia and at Cornell University in the U.S.A. demonstrated that by providing proper stimulation during or shortly after the period of malnutrition they could prevent the expected behavioural changes.

By the middle 1970's studies in humans began to suggest the same thing. American children with cystic fibrosis, a medical condition which resulted in severe malnutrition early in life, when examined later on showed none of the behavioural abnormalities seen in the children with marasmus from the developing countries. The difference between these groups was not the extent or duration of the early malnutrition but the environment in which they were reared. The children with cystic fibrosis came, for the most part, from middle class environments, while those with marasmus came from poor families and were raised in much more deprived environments.

A ray of hope began to appear in what had previously been an extremely bleak picture. But the question of whether children malnourished in an environment of poverty typical of developing countries could be spared the behavioural consequences if subsequently reared in an enriched environment was still unsettled. The answer came in the late 1970's.

In a study of Korean orphans it was demonstrated that children severely malnourished during the first six months of life, if subsequently adopted by U.S. families before the age of three, showed normal I.Q. scores and normal school performances by the time they were 12-years old. Presumably the "stimulating environment" provided by these middle class families were able to prevent the expected behavioural deficit. The results were not as dramatic if the children were not adopted until after the age of three.

Today we know that it is not malnutrition alone which results in mental retardation, but rather malnutrition in early life produced in a setting of poverty and deprivation. While we must take all measures to ensure that all children are adequately nourished. this is not enough. We must at the same time remove the cause, poverty and poor living condition.

(UNICEF News)

Milk Food Ads Banned

ACCORDING to a news agency report from Colombo, the Sri Lanka Government has banned all forms of advertising of infant milk foods in a move to encourage breast-feeding. A Health Ministry spokesman has said the ban followed a recent World Health Organisation decision to discourage the use of artificial infant milk food and to encourage breast-feeding. Violators of the ban on radio, television and newspaper advertisements would be liable to a fine of Rs. 3,000 or three months' imprisonment. The ban did not prohibit the sale of infant milk foods provided the container carries the legend: "Breast-feeding is best."

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Impairment, Disability and Handicap

CRUCIAL to the analysis (and to resulting action) is the differentiation between impairment, disability and handicap.

Impairment is a permanent or transitory psychological, physiological or anatomical loss or abnormality of structure or function, such as an amputed limb, diabetes, limited hearing capacity, mental retardation, etc.

Disability is any restriction or prevention of the performance of an activity, resulting from an impairment, in the manner or within the range considered normal for a human being, and may therefore involve, for example, difficulties in walking, writing, communicating, etc.

Handicap is a disability that constitutes a disadvantage for a given individual in that it limits or prevents the fulfilment of a role that is normal depending on age, sex, social and cultural factors, for that individual ; in other words, a disability only becomes a handicap if it is allowed to interfere with doing what is expected at a given time in one's life.

Causes

The major causes of impairment (and, by extension, of disability and handicap if appropriate measures are not taken) are as follows :

Inadequate nutrition of mothers and children, including mother's ingestion of inappropriate substances during pregnancy ;

Abnormal pre-natal or peri-natal events, including pre-natal damage, genetic factors and damage at or just after birth ;

Infectious diseases ;

Accidents.

In addition, there are various other factors such as environmental pollution, as well as impairments whose origins are still unknown.

It follows from the above listing that the contraction of an impairment is closely linked with, or fostered by, conditions of ignorance and poverty (including access to appropriate services).

Prevention

Action on disability should be focused as follows .

Prevention of impairment, in particular through adequate nutrition of mother and child, improved and available per-natal care, vaccination and accident precautions ;

When impairment nonetheless occurs, prevention of its escalation to disability or handicap by ensuring that the greatest possible opportunities for normal development exist, implying in particular support for the family which constitutes the optimal place for such development to be brought about :

With regard to impairment, disability and handicap, improvement of information designed to change attitudes at all levels, particularly that of the community, as well as the optimum allocation of available resources.☐

(UNICEF News)

Disability : Facts and Figures

The Global Picture

Incidence of disability	(in millions)
(a) Trauma/injury	78
(b) Malnutrition	100
(c) Functional psychiatric disturbance	40
(d) Chronic alcoholism & drug abuse	40
(e) Congenital disease	100
(i) Mental retardation	40
(ii) Somatic hereditary defects	40
(iii) Non-genetic disorders	20
(f) Communicable Somatic diseases	56
(i) Polio	1.5
(ii) Leprosy	3.5
(iii) Onchocerciasis	2.0
(iv) Trachoma	10
(iv) Others	40.0

Disabling Diseases

(a) Polio cases	75,000 per annum
(b) Trachoma cases	400-500 million per annum
(c) Onchucerciasis cases	20 million per annum
(d) Leprosy	15 million per annum
(e) Maternity-related disabilities	110 million per annum
(f) Malnutrition	100 million per annum
(g) Complicated diseases	—
(h) Seclusion	—

Prevention

(a) Medical : Vaccination against communicable diseases such as polio ; effective antenatal and neonatal care, with special attention to high-risk pregnancies. Immediate availability of medical services and early treatment of diseases like trachoma ; psychiatric services; nutritional rehabilitation; health campaigns. Physiotherapy, speech therapy; provision of Prostheses and orthoses.

Social and economic : Alleviation of poverty ; nutritional education ;higher overall education level ; improved food distribution. Attempt to change negative social and cultural attitudes towards impairment ; vocational counselling. Special education ; early stimulation for young child; braille reading, lit reading, sign language; employment and sheltered workshops; public education campaigns.

Environmental

Designing of safer buildings and vehicles: traffic legislation ; public health standards at work place ; removal of architectural barriers ; provisions of transporation.

(UNICEF News)

Research And Education Institute For Appropriate Technology

Y. Nayudamma*

TODAY India has made fairly good advances in the area of many useful technologies. Only appropriate management techniques can match the needs with the existing technology and will lead the society to a better civilization. From our observations of more than a decade in the rural areas of Kutch, Krishna District of Andhra Pradesh, Bengal and Maharashtra, we have concluded that there is no ful-fledged research and educational institute to carry out indepth studies in these regions and of these subjects which would lead to imparting appropriate management techniques to the rural people leading to development of their own areas.

Since last two years we have started our research at CC Shroff Research Institute, Goregaon on the subject of rural area and its population, their functions and needs. We also continue research on development of curriculum which can give required management input to a rural man and also to the faculty members who could go to the rural areas and start imparting the knowledge. The curriculum so developed aims at training faculty members who can take over responsibility to teach and develop the new managerial class for the rural areas. These managers would be no elite exploiters or aloof bureaucrats. They participate with people and solve problems to create wealth out of surpluses available be it carcasses, cow-dung aquatic weeds or agricultural by-products. They are trained to procure, distribute and organise the available resources, to the maximum benefit of all the people.

Aspects of learning

While developing the curriculum for the teachers and the students, we have observed a few important aspects of learning :

1. The learning process is connected with doing and thinking. In reality the doing starts from early age and goes on till the end of life. The same is the case with thinking. With different people, the speed of thinking and doing may be different.

2. Doing and thinking process should be tied together in an ideal education system for human progress and better civilisation.

3. When one observes a housewife or a rural man, she or he has learnt a variety of jobs through seeing, observing, doing, practising and simultaneously adding knowledge through her or his own creativity and thinking. The same is observed in an industry also. Hence an ideal learning process, if connected through work and results, can proceed fairly smoothly provided it is tailored to the needs and aspirations of the person.

4. Just as a doctor is trained to diagnose and treat a very young child or a very old person, a teacher has to be trained to understand the needs of the other person and help him by giving necessary inputs to solve his problem.

Approach

Keeping these ideas in mind, we felt that it is necessary to set-up research and education centres hitheto missing in the rural areas based on the above principles. These institutes will not merely be work places; they would be centres where self-reliance, creativity and productivity of people would be understood and developed.

The method practised by us to set up such research and education centre, to impart the management training, is to form a group of 4-5 young men and to hand over the responsibility of studying the area of about 5-10 villages to them. They learn from government statistics about man to land ratio, animal population water resources, rainfall, products and earnings of the area, skills available with the people etc. After that they prepare strength weakness opportunity threat—SWOT—chart and then emerge with a tentative opportunity plan. These plans are converted into activity chart for a time frame of 5-10 years. They also do an investment plan—a bankable corporate plan with an idea to create job opportunities for 25 per cent of the population. This plan gives a clear training programme schedule for the residents of the villages. This plan is done with full participation of people concerned.

Some of the questions raised and answered by the group while evolving the training programme are :

What are the priorities ? What knowledge is available ? What skills are available ? What surpluses are available ? What is mising ? How will it be brought by training or by bringing knowledge to people ? The cost involved and the effects in terms of time ?

Another necessary input is building a hostel in the given area out of local building material, to stay there, so that the group would begin to understand the life style and also the local needs. They also start a school and a handicraft and industrial training—production-cum-sales centre. They start building intimacy with the people of the region—one of the important pre conditions for this work.

In about six months, the group gathers around 20 persons in the centre. These persons partly earn their livelihood, partly diagnose, partly solve local problems, concerning health, sanitation, river embankment, poultry, cows, fish, farm practices and so on to develop credibility. Organisations like the Khadi & Village Industries, Agricultural Extension or forestry or veterinary or small industries services or other government agencies can then participate to emerge with a worthwhile action plan. Bankers can come in, voluntary agencies too can join in.

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*Eminent Scientist.

This becomes a continuous education plan, where different age groups are able to participate without much constraints. Such a centre can be started in 5 to 10 acres of surplus land. Thus this educational institute has neither drop-outs nor failures. The participants learn to have faith in one another, they learn to concentrate, learn to be self-sufficient, creative and see the whole of today and tomorrow. And thus build themselves in body, mind and spirit.

Development of Management Techniques

Apart from developing methods for imparting appropriate management techniques as explained above, at CC Shroff Research Institute and other places, basic work is carried out to develop technologies which would increase the productivity of rural resources and surplus. So after having looked at our resources scientifically, specially connected to the non-food outputs, we have observed the following things :

Trees do not need good soil. They grow in any soil. Trees demand only care. In return, they help in producing oxygen, stablishing soil, controlling temperature and retaining water. They also start giving returns from third year onward in terms of fuel, fruits and timber; and within five to six years after their plantation, become economically viable. To get results out of breed improvement of cows, it takes 3 to 4 years. The production of milk starts from third year onward and the cows and bullocks become economically viable in the fourth year. Bullock starts working from 2-1|2 years of age on farm as draught animal. It also gives cowdung which, through gobar gas plants provides fertiliser and gas. When dead, it gives leather and bones.

Sheep, goats, pigs, poultry and ducks can start giving returns after one year. They also add to the income of the rural man throughout the year. If water is available and five feet deep pond is made, then fish farming can give very good returns. Handicrafts can start paying within three months, if the market needs are understood properly. Suitable designs of gober gas plants, windmills and hydromills can also increase the productivity of the rural population through energy supplementation.

The persons working at the rural centres are given guidelines from C. C. Shroff Research Institute to improve productivity in the above mentioned areas and suggestions are given for right species of cows, trees, goats etc. to suit the climatic conditions. Work is done in the research institute to develop industries which can conveniently be started in rural areas with rural surpluses as the input. Research is undertaken to devise methods to make houses from local building materials and to develop proper systems of sanitation and hygiene. We run short-term need-based courses for our carde from rural areas to train them into craftsmen or technicians, and then go on groming them, as per need, into technologists or extension workers. Even Engineers, Scientists, Finance Managers, or Entrepreneur Managers, Executives or Faculty Members will first pass through this drill of learning crafts before taking up their final function. This type of updating helps in creating need-based course material and brings in effective faculty members.

Progress

Using the methodologies already explained, we have built our cadre for Kutch and they are running Vivekananda Research and Training Institute since May, 1979. The persons are not only running the centre for normal rural development programme but they have also organised massive relief operations after last year's floods. We are starting along with R K. Mission such institutes in Andhra Pradesh, West Bengal, Maharashtra and other parts of the country.

During our experiments in the field of developing and implementing appropriate technology we have noted that neither language nor caste nor sex is barrier. The eagerness to learn and to get results helps a lot in overcoming such barriers. With us there are many participants with very high I. Q. and high degrees, while there are others who may not have such attributes. However, one thing common amongst all of them is their love for work and community. The desire to be useful and productive causes healthy interaction and there is very little conflict among them. They understand very clearly that organisation survives by their full and proper participation. We believe an appropriate education plan like this can easily eradicate unemployment and create a very viable economy and build a non-inflationary, self sustaining, well managed growing civilisation. □

Duty not Charity

(*Contd. from page* 3)

It is a happy augury that the Government has decided to take some urgently needed steps helping the disabled. It has already drawn up a long-term comprehensive national scheme, and a legislation is on the anvil to promote the welfare of the disabled. Legislation for the compulsory education of the handicapped is also in the offing. To help the disabled gain the necessary skills, industrial training institutions will be asked to reserve two per cent of their vacancies for the handicapped. Three per cent of the jobs in the public sector undertakings is to be reserved for them. They would also be encouraged to form cooperatives. A special programme for disabled children under the age of 14 has been drawn up. Six national centres are being set up where diagnosis of various forms of disabilities can be undertaken. These laudable programmes can fructify only when the machinery to execute them is well organized, efficiently directed, professionally oriented and intelligently integrated. Rehabilitation of the disabled calls for multi-dimensional efforts in the medical, social welfare and educational fields. Employment services, the families of the disabled persons, industries, voluntary bodies and Government—all have to work together in this gigantic task.

The Year of the Disabled is a reminder to us all of the duty we owe to the long-neglected disabled members of our society. Let us all join hands to help them come out of the dead end of the tunnel. Let us be generous with our offer of opportunities to them to stand on their own. □

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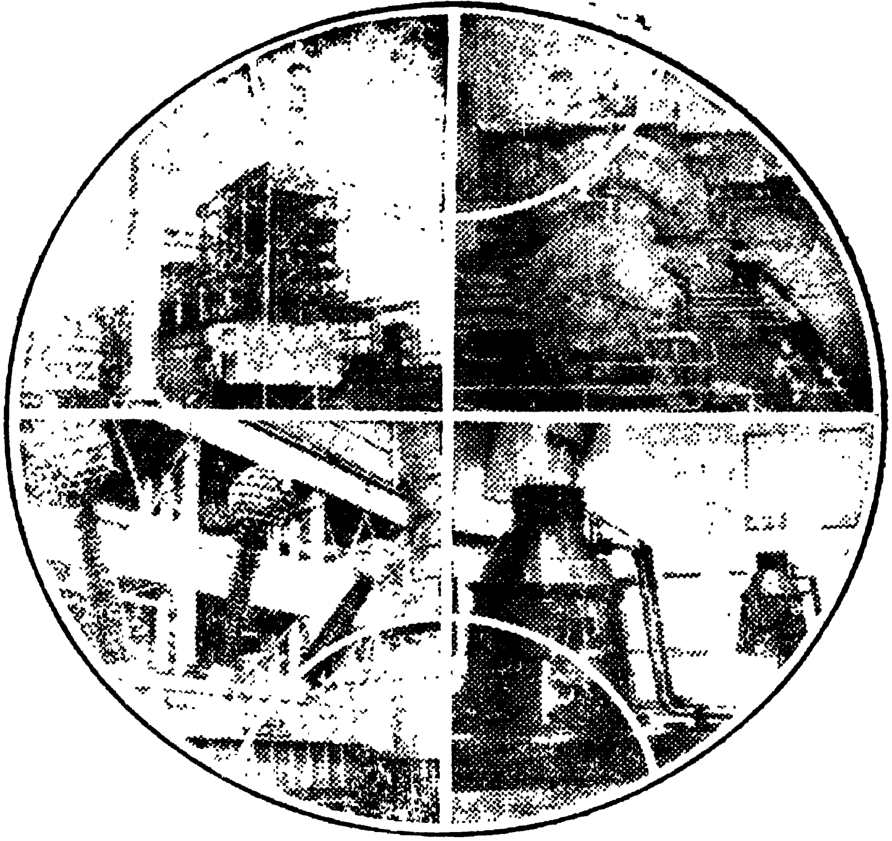

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Libyan Economy and Planning

Dr. Mohammad Iqbal*

THE Libyan Arab Jamahiriya, a vast and sparsely populated country, stretches along the southern Mediterranean shore-line for almost 2,000 kilometers bordering with Tunisia in the West and Egypt in the East and extends southwards as far as Sudan, Chad and Niger. As a result of Iibyan people's struggle and the United Nation's Resolution of November 21, 1949 Libya got independence on December 24, 1951 and became the United Kingdom of Libya. Subsequently as a result of military coup, Coloned Gaddafi came to power on September 1, 1969.

This large country of Africa runs into two broad divisions— a narrow Mediterranean coastal plain, the Gefara, and the broad Libyan Sahara desert which is supposed to be the world's largest desert.

Over 90 per cent of all Libya is desert and does not have permanent rivers or streams. The country with three million dispersed population commands a strategic position. However, its physical, climatic and demographic disequilibrium make the establishment of an effective national transport network, difficult and costly affair.

Until 1951, Libya remained under foreign rule for about 3,000 years except the period from 1200 B.C. to 900 B.C., when it was ruled by its own kings. The history before modern independence is full of invasion, wars, and armed conflicts of one kind or the other. These things along with geographical constraints served to be great obstacles in the way of economic development. Three decades ago it was generally considered an 'economy with eternal poverty'. Before the discovery of oil and the commencement of its commercial production, over 80 per cent of the population was engaged in agriculture. The rapid development of oil industry led to rapid migration to the towns.

Benjamin Higgins leading a UN economic servey mission to Libya in 1951-52 believed that Libya had virtually all the obstacles to development that can be found anywhere—geographical, economic, political, sociological, and technological. He felt if libya can be brought to a stage of sustained growth, there is hope for every country in this world.

Besides this gloomy prediction, it was pointed out in 1965 that Libya lacked planners, administrators and technicians. The government was forced to compete with wealthy oil companies and other foreign firms for the limited supply of trained people. Though a crash educational programme is being implemented it will be years before Libya can make up for the the appalling neglect of education by the former Italian colonial administration.

Before the discovery of oil Libya was so poor that the World Bank in its reports of early 1950's considered Libya with per capita income of $ 40, as one of the poorest nations of the world.

Today Libyan economy presents the most interesting case of a rapid economic transformation. It is one of the fastest moving economies of the world. Its per capita income rose from $ 40 in fifties to $ 6,000 in 1980, and World Bank considers it as one of the nations having high per capita income and fourth wealthy nation in the world.

Discovery of Oil

Oil explorations in Libya started in 1955, but it was only in April 1959 that first major oil discovery was made at Zelten. The export of oil began in 1961 and they achieved a favourabale balance of payament for the first time in 1963. Oil exports provide over 90 per cent of foreign exchange earnings. However, despite increasing imports of foodstuffs manufactured goods and raw materials, Libya continues to enjoy a favourable balance of trade.

Libya's estimated reserves of oil are around 30,000 million barrels and if they continue to extract oil at the present rate, oil will not be exhausted before forty years. Therefore, the planners in this oil-based economy are trying hard to reduce dependence on oil and keep oil production at low levels. Recently considerable discoveries of oil have been made in Western Libya and off shore. Rapid flow of oil in vast quantities changed the country from poor agaricultural and desert country to super affluent one.

Planning and Development

Libyan economy being similar to those of other Arab rich oil exporting states has experienced almost identical pattern of development to that of the kingdom of Saudi Arabia. Libva like Kuwait, UAE, Saudi Arabia conforms to a model of development with unlimited supplies of finance.

Like other non-oil developing countries, financing of development is no obstacle to development plans in Libya. The economy does not suffer from unemployment problems—a serious problem for developing as well as developed countries. Country is also free from deficit in the balance of payments and population explosion to absorb realized growth rates.

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In the second decade of independence, two important changes took place in the political framework of the economy. First, federalism was abolished in April 1963 and a unitary state came into existance. Federal state was considered uneconomical and inefficient. On September 1, 1969, Libya became a republic under the name of the Libyan Arab Republic.

The new regime pledged to follow the Nasserist line in international affairs and internal politics and on social justice, development and the liberation of national resources from foreign control. The new ruling group declared itself interested in changing the economic system and paying greater attention to distribution and the provision of much wider opportunity to the bulk of the population. The economy, during late sixties, was much better organised and development planning had become more rational, orderly and efficient. A number of measures such as nationalisation and government controls have been taken.

The planning has taken into consideration both, the negative approach involving the awareness of the adverse effects of oil on the economy and society and the positive approach, involving the awareness of how best to use oil resources for developing the economy and the society.

Between 1946 and the end of 1951 there were no signs of economic planning. The period 1952-61 was characterised by foreign economic support. However, in 1951 UN Mission presented first plan proposal and second plan proposal was given by IBRD survey mission.

The UN mission presented a very long-term plan having three phases. The first phase of six years stressed on training and education; agricultural promotion, the repair of war damages to public transport public works and public utilities and the obsorption of inactive manpower into the economy. Besides the heavy foreign financing 5—10 per cent of national product was to be invested. The second phase with two six years aimed at further improving agriculture, and setting up of certain light industries. It also aimed at reducing deficit in the balance of payments. In this phase between 10 and 15 per cent of national poduct was to be invested. The third phase consisting of six year plan aimed at further development in the fields of agriculture and industry, mechanisation and balance in the external sector. In this plan at least 15 per cent of the national product was to be invested.

This process of very long-term planning was based on the assumption that the country was poor and had no prospects of significant exploitable resources. In 1956 the Development Council was established but till 1960 it had not undertaken planning in the real sense of the term. It was in 1960 that the IBRD suggested a five year plan beginning from 1st April 1960, ammounting to LD 25 m. In addition to this an amount of LD 11.9 m. was to be allocated for recurring expenditure on development. This plan allocated 32 per cent of total allocation for the development of primary sector (water resources, agriculture, forestry and dune fixation. Nearly 21 per cent was allocated for the social services, education, health, housing and sanitation. Besides, 17 per cent was allocated for electric power and town and village water. Industry handicrafts and fisheries were to receive 7 per cent of the total plan allocations, Only 3 per cent of the total outlay was to be invested in public buildings, capitalisation of National Bank and antiquities and tourism.

In the meantime, as a result of the emergence of huge oil revenues, the financial picture was changed, The actual development expenditures rose above the planned level. IBRD was asked to draw new plan which could reflect the financial availabilities. On 16th July the Development Council was replaced by a National Planning Council. Therefore, the First Five Year plan for 1963-68 envisaging a total public expenditure of LD 169 million aimed at ensuring speedy improvement in the level of living of the people, particularly low-income groups. Further it was to place strong emphasis on agriculture and improvement and expansion in education, health, housing communications and the factors which serve as infrastructure.

The Second Five-year Plan 1969-74 was approved by the government on March 27, 1969. It reflected the improved financial fortnues of the country. The second plan allocated investment totalling LD 1,149 m. Of this nearly LD 980 m or 85 per cent was to be spent on public works, communications, agriculture, housing education, municipalities, industry and health.

But within five months as a result of the takeover of power by the Free officers on 1st September, 1969, the Plan was suspended. However many of the projects in the pipeline were continued.

Libyan Government issued the Three year Plan (1972-75) on 27th April, 1972. This plan being most sophisticated and comprehensive, included investment projections for the public sector, and expectation for the private sector, including the private oil sector, as well as projections of the availability and use of resources for Plan years. The plan undertook the examination of the dislocations of which the economy had been victim. It also examined the unhealthy dependence on an ever-inceasing volume of imports at the expense of local production. This plan indicated the broad aims and targets designed to correct the dislocations and imbalances, and to further healthy development. Particular attention was paid to the better integration of the oil sector into the economy.

Moreover it was planned that the non-oil sectors should grow in relative size, in addition to growth in absolute terms and should correct the situation where much of the growth in oil leaks out to finance huge imports and as capital outflows. As regards plan strategy it emphasised the need for the duration of the plan to resort to capital-intensive investment in order to prepare the machinery for productive and supportive sectors. Attention was paid to speed up the education and training programmes of the country. The plan allocated an investment of LD 1,165 m for three years for the public sector—which included LD 1,007 m for gross fixed capital formation and LD 88 m for financial investment (Investment creditors, increase in the capital of lending agencies and like items) and LD 70 m for other investment expenditures. The public sector was to undertake a gross domestic fixed investment of LD 995 m. while the private sector was to undertake gross fixed domestic investment of LD 527m.

From Table I its appears that the largest share of public investment went to transport, communications and storage. It was followed by transformation industry. The largest share of private-sector investment went to the petroleum sector which received twice as much investment in absolute terms as transport, communications and storage.

TABLE—I

Gross Fixed Domestic Investment in the National Economy in the Three Year Plan 1972-73—1974/75 by the Public Sector and the Private Sector(at 1971-72 market prices and in LD millions).

Economic Sector	Public sector	Private sector	Total
Agriculture, forestry and fishing	111.6	24.0	135.6
Petroleum	40.6	377.0	417.6
Minning and quarrying	2.6	3.0	5.6
Transformation industry	183.2	24.0	207.2
Construction	9.7	12.0	21.7
Electricity	101.5		101.5
Total Commodity Sectors	449.2	440.0	889.2
[illegible] communication [illegible]	187.3	24.0	211.3
W[illegible] and retail trade	2.1	7.0	9.1
Total distribution sectors	189.4	31.0	220.4
Banks and insurance	1.0		1.0
Housing	84.5	48.0	132.5
Public services (excluding education)	144.4		144.4
Education	95.4	0.5	95.9
Health services	48.1	0.5	48.6
Other services		10.0	10.0
Total service sectors	373.4	59.0	432.4
Grand Total (including land value)	1012.0	530.0	1542.0
(excluding land value)	17.0	3.0	20.0
Grand Total	995.0	527.0	1522.0

In order to break the vicious circle of underdevelopment and achieve rapid growth the Five Year Plan (1976-1980) undertook a highly intensive investment programme. Table II presents the expected contribution of the various sectors to Gross Domestic Products. The plan allocated an amount of LD 7840 to give economy yet a bigger thrust than the previous plan and help it into a bigger leap forward along the path of transformation from the Revolutionary phase to the final phase of an established and healthy body-politic. They have adopted the method of comprehensive planning for resources and potentialities, so that a balanced growth may be achieved in the national economy, with growth rates in all activities so harmonized that none of them goes ahead of the other.

Table II Fixed gross domestic investment under five year plan (1976-1980) distributed over public and private sectors (in LD Million)

Economic Activities	Public sector	Private sector	Total
Agriculture, Forestry and Fisheries	874.1	65.0	939.1
Oil and Natural Gas Extraction	40.0	155.0	195.0
Mining Quarry	7.0	10.0	19.0
Processing Industries	1471.7	35.0	1506.7
Electricity & Water	706.7	0.0	706.7
Construction	32.0	40.0	72.0
Wholesale & Retail Trade	32.9	15.0	47.9
Transport, Storage and communication	1197.8	280.0	1477.8
Insurance & Banking	5.0	0.0	5.0
Housing	764.3	430.0	1194.3
Public Services (excluding health & education)	759.1	0.0	759.1
Education Services	.460.5	2.0	462.5
Health services	144.6	4.0	148.6
Other services	0.0	25.0	25.0
Reserve Funds for the Projects (contingencies)	310.3	0.0	310.3
Grand Total including Land Value	6808.0	1061.0	7869.0
(Less Land Value)	21.5	7.5	29.0
Grand Total Excluding land Value	6786.5	1053.5	7840.0

The Five Year plan aimed at increasing the total production in all sectors in such a way as to realise an overall compound growth rate of the Real Gross Domestic Product of 10.7 per cent per annum. Non-petroleum sectors were planned to grow at a rate of 14.1 per cent per annum while the growth rate of the activity of the extraction of crude petroleum and natural gas were kept at 7.8 per cent per annum. Moreover the per capita income was planned to grow at an annual compound rate of 5.6 per cent from LD 1360.4 in 1975 to LD 1786.5 in 1980.

The Five Year Plan of Economic and Social Development in 1976-80 aimed at keeping the dynamic economic momentum of the process of development It aimed at freeing the economy from stranglehold of single product by broadening the field of economic development and attaining a higher level of self sufficiency in basic commodities. Besides it aimed at reducing inequality of incomes and wealth and narrowing regional imbalance while maintaining the social fabric of the Republic. Attention was also paid to the growth of manpower skill and efficiency through the medium of education and training.

The Libyan Arab Jamahiriya is presently engaged in drawing up an ambitious programme of socio-economic development for 1981-86. The country has already made progress in building infrastructure and developing petrochemical and other industries. Indians numbering about 50,000 consisting of doctors, engineers, nurses, teachers, construction workers and technical personnel have been contributing significantly to the economic development. India's rivals in Libya are West German, Iitalian, French, British and Swedish firms.

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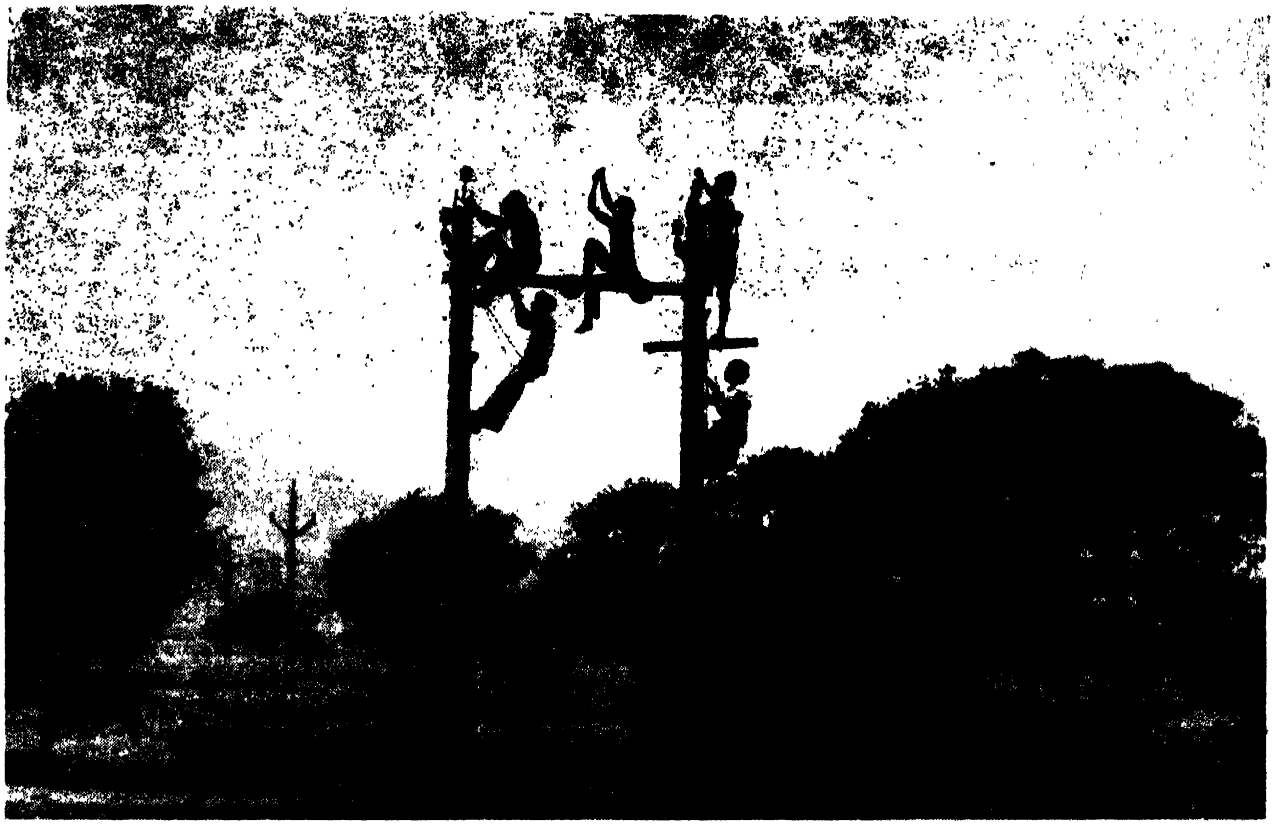

Work on transmission lines for rural areas in progress

March of REC

R. S. Shukla*

INDIA lives in the villages. The development of the country depends on the qualitative improvement in the life of its rural masses. Electricity has often acted as a fore-runner of prosperity. Rural Electrification Corporation (REC) working under the Ministry of Energy is continuously trying to provide electricity to rural areas.

Genesis and Objectives

REC was set up in July 1969. A Government of India enterprise, REC is an autonomous body registered as a company under the Companies Act of 1956. The main objects of the Corporation include : (1) financing of rural electrification schemes, (2) subscribing to rural electrification bonds issued by State Electricity Boards from time to time, (3) promoting and financing rural electric cooperatives and (4) administering the funds received from the Government of India and other sources for financing rural electrification in the country. It is managed by a Board of Directors appointed by the Government of India. The head-office of the Corporation is located in New Delhi. The Corporation has eleven regional offices in different parts of the country which help State Electricity Boards in different ways.

The resources of the Corporation consist of equity capital, loans from the Government, market borrowings and its own reserves.

Approach

Rural Electrification Corporation is a development-financing institution. It finances rural electrification projects formulated by State Electricity Boards. The Corporation has evolved a suitable set of policies and procedures for this purpose. It has adopted an area-development approach with emphasis on the electrification of under developed pockets. An electrification scheme financed by the Corporation is conceived as a part of the total development effort in a particular area.

Policies

As a matter of policy, REC lays more emphasis on the electrification of backward and under-developed areas. The rural electrification projects for different areas are classified into three categories based on the level of the rural electrification achieved. The categories are : Ordinary Advanced Areas, Ordinary Backward Areas and Specially Under-developed Areas. REC provides financial assistance for projects of these areas on different rates of interest. It has also been extending special assistance for electrification of backward and tribal areas.

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*Assistant Director Rural Electrification Corporation

Special Projects

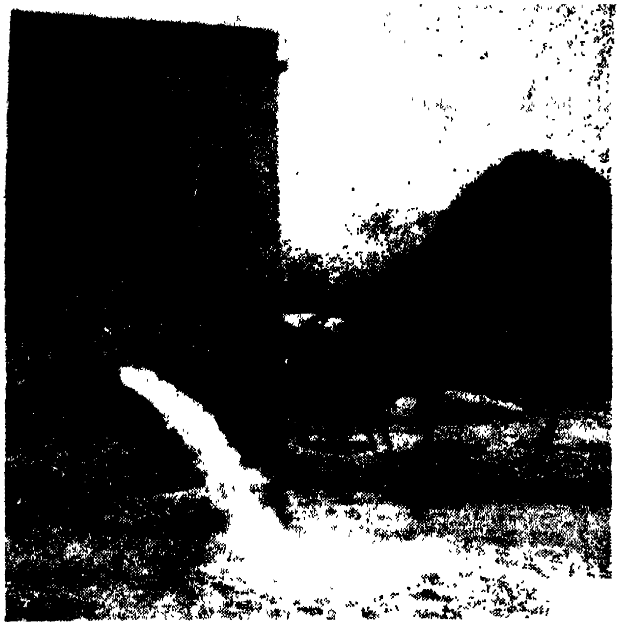
Besides financing general rural electrification projects and those coming under the Revised Minimum Needs Programme; the Corporation provides loans for specific purposes For this special categories of loans have been evolved. An important innovation is the Special Project Agriculture (SPA) programme meant primarily for energising irrigation pumpsets on a large scale. This programme has been launched in cooperation with commercial banks and the Agricultural Refinance & Development Corporation (ARDC). One-third of the total cost of the project is given by REC and the remaining two-thirds by the participating commercial banks which later get 50 per cent of their share refinanced by ARDC. During the period 1978—83, an amount of Rs. 360 crores is proposed to be invested in this programme which envisages energisation of six lakh pumpsets in potential areas. Under the category Special Project Drinking Water (SPD), emphasis is laid on providing drinking water in rural areas through energisation of pumpsets. Similarly under the Special Project Industries (SPI) loan assistance is given for extending electricity to proposed industrial estates in rural areas. Special loan categories have been designed for system improvement and training of engineers and technicians engaged in the work of rural electrification.

Cooperatives

The promotion of rural electric cooperatives is one of the main objects of the Corporation. It has helped organise sixteen rural electric cooperatives so far in different States of the country, and of these fifteen are already in operation. A total loan assistance of about Rs. 30 crores has been sanctioned for these cooperatives

Performance

REC has sanctioned an aggregate loan assistance of more than Rs. 1,286 crores for 3,723 properly planned rural electrification projects in the country. These schemes will cover more than 14.17 lakh irrigation pumpsets About 73,000 villages have already been electrified under the projects financed by REC. Nearly six lakh pumpsets have been energised under the Corporation's programme of rural electrification.



An energised pumpset

Consultancy

REC has gained considerable experience in scientific planning, rural electrification for area development, formulation of individual projects to meet different needs and various other aspects of this crucial programme This has attracted the attention of international organisations like the Economic and Social Commission for Asia and Pacific. A project report for electrification of rural areas of Egypt was prepared by REC experts. Its engineers are presently helping Algeria in executing its rural electrification schemes

Future Programme

A target of electrifying 25,000 more villages and energising four lakh pumpsets has been set for the current financial year. The Sixth Plan envisages energisation of 20 lakh irrigation pumpsets and electrification of one lakh additional villages including 40,000 villages to be covered under the Revised Minimum Needs Programme. It is proposed to electrify all the villages of the country by 1995. The likely investment is expected to be of the order of Rs. 5,000 crores. REC is well poised to play its role in achieving this cherished goal which will open new vistas of rapid progress and prosperity for rural India. □

Improved Farm Implements

THE Punjab Agricultural University (PAU) has designed an improved wheat thresher to reduce the number of thresher accidents. About 200 such accidents were reported during the wheat threshing season of 1980. The design of the thresher has improved self-feeding chutes approved by the Indian Standards Institution. This was disclosed at a seminar on "Improved Agricultural Implements and Machines for Rabi Crops" held at Ludhiana recently.

During the seminar the participants were apprised of the latest farm implements which work efficiently. The PAU engineers gave field demonstrations of various implements used for seed bed preparation, sowing, planting, spraying and threshing of different rabi crops. □

Public and Private Sectors

-A Comparative Study

Suresh N. Kulkarni*

The economic performance of our public sector leaves much to be desired. Scientific management of the same should be intensified so as to use the market mechanism as a tool and not as an end and to enable the public sector to act as one of the citadels of Indian democracy. The table 1 gives the growth of public sector in India.

TABLE I

Growth of Public Enterprises in India (1951—1979)

End of March	Number of enterprises	Net investment (in Rs. crores)
1951 .	5	29
1956 .	21	81
1961 .	48	953
1966 .	74	2415
1969 .	85	3902
1974 .	122	6237
1979 .	176	15602

†Paid-up capital + loans.

To avoid double reckoning, investments in holding companies and their subsidiaries are excluded.

The social and economic goals of the public sector are complementary and not substitutes. In fact both involve tradeoffs. In adopting social criteria, analysts stress social welfare goals but not the costs associated with them. But in the long run social welfare can be maximised if resources are utilised economically, that is if waste is minimised. Economic criteria provide guidelines for this purpose. Historical experience suggests that in democratic polity governments interact primarily with pressure groups. Under pressure group dynamics they can legitimize public expenditures only on grounds of efficient utilisation. Welfare demands of these groups cannot be satisfied at the same time. But the pace of satisfaction can be quickened if national resources are used efficiently. The time horizon can be shortened. Inefficient performance is not only counter-productive but also entails national loss. Therefore promoting national welfare and at the same time incurring national loss is like cancelling two equal quantities of opposite signs, leaving zero level of progress. Hence the necessity to run the public undertakings on sound economic lines.

Here is an attempt to compare the economic performance of private and public sector undertakings. Only those undertakings which have completed the gestation period and have been running for last twenty years have been selected for the purpose. On this basis 19 running enterprises in the public sector have been identified. By 1977-78 they were 20 years old. They are grouped as: Engineering, Chemicals, Coal Mining, Ship Building, Construction including Housing, Trade, Paper. These groups are compared with the same groups of the private sector.

All the figures, except in the two rows of Averages, are mean values of 19 running public enterprises and all the parallel units in the private sector, respectively.

As seen from table 2 public sector units have consistently operated less efficiently than their counterpart groups in the private sector: values of all the three variants of Rate of Return were lower among government enterprises as compared to the private enterprises. The gap has persisted over time, although narrowing. In the second place, income differential needs to be narrowed down dramatically and not merely gradually, because as volume of investment keeps growing, a gradual reduction in the differential paradoxically enough bulges the size of national loss of output. While the differential declined from —0.193 to —0.136 (by 70.5 per cent) output loss increased from Rs. 183.92 crores to Rs. 2121.87 crores in Second to Fourth Five Year Plan period. It seems inevitable that for redressing the inefficiency imbalances some magic wand will have to be devised otherwise loss will keep mounting. Investment Programming is one tool worth deploying.

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*Indian Council of Social Science Research, New Delhi

Year	Value added as Proportion of total capital employed		Income differential Col. 2 minus Col. 3	Rate of Return: Gross profits as percentage of total capital employed		Net profits as percentage of net worth		Net profits as percentage of paid-up capital	
	Public Sector	Private Sector		Pub. Sector	Private Sector	Pub. Sector	Private Sector	Pub. Sector	Private Sector
1958-59	0.134	0.266	—0.132	8.3	10.6	6.5	10.0	4.4	6.4
1959 60	0.113	0.286	—0.173	6.1	11.7	4.5	11.6	4.6	5.8
1960-61	0.107	0.298	—0.191	5.3	12.5	4.2	10.4	5.0	4.9
1961-62	0.099	0.306	—0.207	4.8	13.2	4.2	11.2	4.2	6.4
1962-63	0.055	0.324	—0.263	1.3	14.3	6.0	8.9	—1.5	5.1
Average	0.102	0.295	—0.193	5.2	12.5	5.1	10.4	3.3	5.7
1973-74	0.348	0.541	—0.193	10.8	16.4	6.7	13.2	15.8	24.3
1974-75	0.345	0.422	—0.077	11.6	20.8	7.7	16.6	18.2	32.8
1975-76	0.351	0.481	—0.130	13.6	16.6	9.9	10.1	20.0	23.9
1976-77	0.398	0.514	—0.116	14.8	17.3	13.0	10.6	33.4	21.0
1977-78	0.338	0.502	—0.164	13.3	16.5	8.9	10.8	27.7	21.4
Average	0.356	0.492	—0.136	14.8	17.5	9.2	12.3	23.8	24.7

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Changing Pattern of Business Finance : Company Deposits

M. L. Singhal*

FINANCE is the life blood of Trade, Industry and Commerce. Smooth and economic functioning of a business is not possible without the availability of adequate finance. Public Deposits have been an important source of business finance. These deposits are not new or novel source of finance in the Indian corporate sector. Even towards the beginning of this century, deposits from employees or directors and their relatives were invited and accepted by the companies at attractive rates of interest. Financing needs of cotton textile, sugar, engineering, chemicals, power generation and distribution, tea gardens, and other industries are generally met through public deposits. In the past these deposits were popular in Bombay, Gujarat and other metropolitan cities only. At that time the banks used to command much less significance in the Indian Economy and banking habits of the people were limited. The requirements of finance were not so much as they are now and the pressure of the operations on the funds of a company was not so acute as experienced by most companies, particularly since the sixties. The company deposit schemes started gathering momentum in the early sixties of the present century assuming gigantic proportions in the mid-seventies.

Since the nationalisation of the fourteen largest private sector commercial banks, funds of huge magnitude have been mobilised for high priority sectors like agriculture, exports and small-scale industries. Organised non-core sector of Indian industries comprising the lion's share, however, enjoyed a low priority from the point of view of availability of funds from financial institutions and commercial banks for financing short-term requirements. Moreover, the pressure exerted on the liquidity of companies by the acceptance and implementation of Study Group's (Tandon Committee report) recommendations and norms fixed, and by many different laws and regulations made thereunder has almost eaten into the vitals of these companies. The growing number of sick units in almost all industries is a case in point. The real reason for corporate sickness has not yet been diagnosed after organised probe into different aspects of operations of companies belonging to both sectors of the economy. While the commercial banks have behaved in a miserly manner as regards the financing of organised non-core companies, particularly short-term requirements, acceptance of deposits from the public came in handy as an alternative source for procurement of funds for tiding over scarcity of such funds from the other sources.

In India, non-banking companies accepting deposits are broadly of two types, viz., non-banking, non-financial (i.e. corporate sector companies) and financial and miscellaneous non-banking companies (i.e. chit fund companies, prize chit companies, etc.). While the acceptance of deposits by the former is governed under the Companies (Acceptance of Deposits) Rules, 1975 framed by the Government under section 58A of the Companies Act. 1956, control of deposits accepted by the latter is exercised by the Reserve Bank of India.

Non-Banking, non-financial companies have been accepting deposits for 1, 2 and 3 years at attractive interest rates of 11 to 15 per cent. Even some companies offer 16-17 per cent interest on these deposits. In the recent past public sector companies like Indian Oil Corporation of India, Steel Authority of India, Hindustan Petroleum etc. have also started inviting and accepting deposits on attractive terms and rates of interest. Steel Authority of India is offering such attraction as Rs. 1,000 becoming Rs. 1,500 after three years at more than 16 per cent interest per annum.

Growth of Company Deposits

Aggregate deposits and exempted borrowings of the non-banking financial and non-financial companies rose over the decade by Rs. 913 crore or 322.26 per cent from 283.4 crore at the end of March, 1966 to Rs. 1,196.7 crores at the end of March, 1975. The highest rise was registered in 1973-74, the increase being Rs. 281 crore or 38 per cent over 1972-73. This was due to the sharp rise in the number of reporting financial companies and miscellaneous non-banking companies as also the increased amount of exempted loans availed of by the non-financial companies.

Of the total amount of Rs. 498 crores raised by way of deposits in the non-banking corporate sector, as on March, 31, 1975, non-financial companies accounted for Rs. 394 crores or 79 per cent and miscellaneous non-banking companies for Rs. 34 crore or 7 per cent while financial companies accounted for Rs. 70 crores or 14 per cent. Heavier reliance on deposits is noted in the case of non-government companies which raised Rs. 478 crores or 96 per cent of the total, while deposits of Government companies were Rs. 20 crores or 4 per cent only. Exempted borrowings of financial companies comprised 43 per cent of the total while non-financial and miscellaneous non-banking companies accounted for 52 and 5 per cent respectively. While non-Government companies raised Rs. 486 crores by way of exempted loans, their share in the total was 70 per cent, whereas the Government companies raised Rs 212 crores, their share being 30 per cent.

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While commercial banks have behaved in a miserly manner regarding financing of organised non-care companies, .. acceptance of deposits from the public came in handy as an alternative source . . .

According to the latest figures published by the Reserve Bank of India, total deposits (including exempted borrowings of Rs. 720.3 crores) with companies at the end of March 1976 amounted to Rs. 1,265.2 crores which formed 9.0 per cent of the total deposits of scheduled commercial banks at that time. No firm data are available after this date. However, a preliminary estimate based on figures furnished by 3,102 companies shows that the total deposits with companies amounted to Rs. 1,491.0 crores at the end of March, 1979. This includes exempted borrowings of Rs. 802.5 crores. However, this appears to be an under-estimate because the number of companies reporting figures for March, 1976 was 5,640, while it was only 3,102 for March, 1979. Secondly, total company deposits formed about 9 to 10 per cent of bank deposits in the last 10 years. As against this the estimated figure of Rs. 1,491 crores as of March, 1979 formed only 5.5 per cent of the outstanding bank deposits. Thirdly there is every reason to believe that companies have resorted to heavy borrowing from the public in the recent past because of the policy of credit restraint followed by the Reserve Bank of India, curtailing the flow of bank credit to the corporate sector. Recently companies have raised the interest rates considerably and thus the gap between their rates and bank deposit rates has widened. Therefore, even on the assumption of the ratio of 9 per cent to bank deposits—the same as in March, 1976—the level of company deposits should have reached something like Rs 2,430 crores in March, 1979.

Default in Repayment

Reports indicate that there have been quite a few instances where companies have defaulted with regard to payment of principal amounts of deposits received from the public as well as the interest accrued thereon. The matter is reported to have figured prominently at the meeting of the Parliamentary Consultative Committee attached to the Finance Ministry held at Madras in the middle of May, 1980 and the Finance Minister shared the concern expressed by the members over the reported cases of malpractices indulged in by companies which accept deposits from the public. The problem of default in repayments of deposits was examined by the James Raj Committee in 1975, and it made a number of recommendations to protect the interests of the depositors. The committee found that the liquidity of non-financial companies has tended to decline in the context of their increasing dependence upon public deposits, and it suggested that the liquid assets of these companies should not fall below 10 per cent of their deposit liabilities maturing in any given year. This was intended to ensure the prompt repayment of the principal amount of deposits and payment of interest as and when they fall due. Another important recommendation made by the Committee related to the fixing of a minimum and maximum time limit for holding deposits by companies at six months and 3 years respectively. Yet another recommendation was to compel the companies seeking deposits from public to give maximum information about their financial position in the newspaper advertisement in the prescribed format. This was intended to enable the depositor to examine the financial position of the company before placing his funds with it. The Committee, however, did not feel it advisable to put a ban on acceptance of public deposits by the companies as it would affect production; but at the same time, it advocated regulation of such deposits with a view to reducing the companies' dependence on them progressively. In fact, it had suggested that deposits received from company directors and shareholders of private limited companies should be included under exempted categories of deposits for the purpose of quantitative ceilings on deposits so as to increase the owner's stake in the companies.

The Government accepted all these recommendations and implemented them. But, it seems that things have not improved materially since then. Apart from implementing the measures suggested by the James Raj Committee a quantitative ceiling on total level of deposits based on the net worth of the company has been prescribed and at present this is fixed at 35 per cent of the net worth. This ceiling was to be reduced after 31st March, 1980. However due to the representation received from corporate bodies, the Government have allowed the ceiling at the current level beyond that date. Although all the regulatory steps taken by the Reserve Bank of India and the Government are aimed at safeguarding the interests of the depositors, there are no penal provisions to deter the companies which choose to become truant in the matter of repayment of principal amounts of deposits and payment of interest accrued thereon. The high power committee set up under the chairmanship of Justice Rajinder Sacher to review the Companies and MRTP Acts pointed out this lacuna in section 58A of the Companies Act, 1956, wherein no penalty is prescribed in case of default by companies in paying deposits as and when they mature for repayment. The committee has, therefore, suggested a suitable amendment to the above section of the Companies Act to provide for a penalty for the directors in case of wilful default with regard to payment of interest and deposits by companies. The Committee has further suggested that a depositor who has not been paid either the interest or the principal or both should have the right to move the court without any authorisation, as is now required under section 621 of the Companies Act. No action seems to have been taken on these recommendations by the Government as yet.

Reasons for Growth of Deposits

In spite of the default in payment of interest and principal by quite a few companies the company deposits have tended to grow. The reasons for this are not far to seek :

(1) With the sharp increase in price of commodities in the last one year or so, the corporate sector needed a larger volume of working capital. As the commercial banks were directed to exercise tight control over their credit disbursal to companies especially against drawals in anticipation of price escalations, companies, especially those belonging to big houses and multinationals have resorted to public deposits in a big way.

(2) Interest rates on lending to corporate sector have been raised sharply from 15 per cent to 18 per cent with effect from September 13, 1979 and this has made borrowings from the public cheaper than bank borrowing for the companies.

(3) Companies have to accept a lot of financial discipline and clearance from the Reserve Bank of India under Credit Authorisation Scheme while applying for additional credit limits and these inconveniences are avoided in the case of public deposits.

On the other hand, the main attraction for the public is the rates of interest offered by companies on deposits placed with them.

Conclusion

Till very recently, business organisations were not serious about the effective management of working capital. This was partially because finance was easily available from various sources—banks and other financial institutions. But after a long period of complacent planning and policy, organisations are finding it very tough to meet their financing needs which have gone up tremendously owing to restrictions imposed recently on the borrowing facility, on the one hand, and due to effects of inflation on the other. Thus for the rapid economic development of the country and to hold the price line every effort should be made to increase production in fields and factories. If a ban on company deposits is imposed, production will be adversely affected. The wheel of production will go slow due to shortage of adequate funds. Therefore, some statutory provisions should be made to control the malpractices and default in payment of interest and principal amount. It may be a valuable suggestion to set up an 'Investment Insurance and Guarantee Corporation' to safeguard the interest of depositors and to have an effective control on borrowing companies. This will create faith in depositors and adequate working capital may be more easily available for the smooth functioning of a business organisation. □

Land Army in Madhya Pradesh

THE Madhya Pradesh Government have decided to raise a land army for rural reconstruction. The land army will ultimately have a strength of 25,000 comprising five battalions which will operate in Gwalior, Indore, Jabalpur, Bilaspur, Raipur and Rewa divisions. To begin with Government have decided to constitute this as an integral part of the Agricultural Department. However, the nature and function of the organisation is being worked out. The land army will basically be a disciplined and skilled labour force.

The tasks to be undertaken by the army include small irrigation works, construction of bunds, canals etc. for irrigation, anti-flood measures, afforestation, horiculture, forest protection and patrolling, construction of roads, bridges, culverts and tracks as well as rural housing, schools, organisation of health and hygiene in villages including anti-mosquito and anti-fly drives and vaccination, propagation of family planning and welfare, adult education, slum clearance and resettlement including construction of houses for slum dwellers etc. The land army will be allotted projects commensurate with its capabilities.

The land army will have control headquarters and field formations such as battalions and companies as in the armed forces. It will have a distinct uniform flag etc. which will give it identity and dignity. Work force will be raised for each region and will be shifted or demobilised after completion of works in the region.

It will be headed by a Commandant General who is of the rank of Brigadier at present. Each project will have a Commandant and there will be Company Commanders in-charge of companies of the work force.

At the State level there will be a committee headed by the Minister of State for Agriculture to coordinate and supervise the tasks assigned to the land army. The Commandant-General will be the Secretary of this Committee while prominent non-officials and Secretaries to Government in the departments of Irrigation Public Works, Rural Development, Forest Revenue, Agriculture, Planning, Finance and Labour will be ex-officio members. To begin with there will be a committee to coordinate and supervise its activities in the Rewa division headed by the Commissioner. The local Commandant will be the Secretary of this committee while the Collector of the project area, the Superintending Engineer and the D.I.G. of Police will be members. This committee will meet once a month to review the working of the land army.

The men enlisted into the land army will be paid Re. 1 more than the prescribed minimum wages per day as wages and progress of work will be recorded as in other departments of the Government. Workers in the age group 18 to 45 years will enlisted.

To inculcate discipline and to organise the land army into an efficient work force, officers from the army will be included in it and will command its various formations. An element of the State Police or Home Guards may also the incorporated to take up police and security duties. The force flag will be flown at the headquarters and at all the project sites. The first Unit of the land army started work at the Bavsagar project on December 14, 1980.

BIG LEAP BY A.P. AGROS

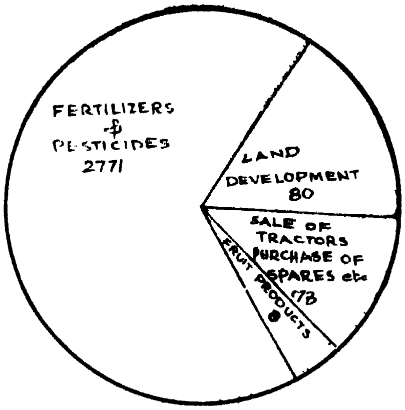
Our Achievements - Year Ending 1980

(*Value in Lakhs of Rupees*)

OUR PERFORMANCE

(Turnover in Lakhs of Rupees)

1975-76	656
1976-77	1416
1977-78	1902
1978-79	2522
1979-80	2932



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Command Area Development Offices at Jagtial, Peddapalli, Metpalli, Jaggaiahpet & Kurnool.

Pesticides Formulation Units at Kurnool & Khammam.

Agro Service Centres at Hyderabad, Miryalaguda Khammam, Vijayawada, Kakinada, Eluru, Nellore Ongole, Kurnool, Anantapur, Medak, Visakhapatnam and Tirupathi.

Rural Distribution Centres at Bobbili, Yellamanechili Noonepalli, Peddapalli and Kavali

Fruit Preservation Factory, Anantharajupet

Ready to serve beverage (APSA) unit, Hyderabad

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Hyderabad-500004

OUR MOTTO : SERVICE TO THE FARMERS

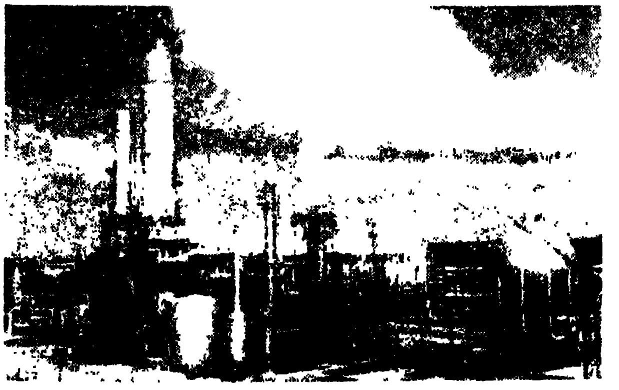
LIC's Progress

LIFE Insurance in India was nationalised in 1956. The total new business of Life Insurace Corporation in 1957, the first year of nationalisation, was just Rs. 278 crores. It has since made giant strides to reach Rs. 8006.39 crores in 1979-80. There were just about 47 lakh policies in force at the time of nationalisation; this number has since gone up to 221 lakhs by 1979-80. The premium income of the Corporation has increased to Rs. 875.37 crores in 1979-80 as against Rs. 88.12 crores in 1956-57.

In 1979-80, out of the total number of policies of 20.98 lakhs, 5.91 lakhs were from the rural areas. In the matter of sum assured, out of the total individual business of 2744.33 crores in 1979-80, the business from rural areas amounted to Rs. 603.77 crores.

In order to improve its services, increasing emphasis is being laid on claim settlements. Whereas in 1956-57 the amount of claims paid amounted to only Rs. 24.96 crores, these have risen to over Rs. 283 crores in the year 1979-80. Over these years, the Corporation has paid over Rs. 2000 crores by way of claims thereby helping about 8 million policyholders or their depedents through maturity and death claims. On an average about 2200 claims are being paid by the Corporation on each working day. A special drive was launched to accelerate the pace of claim settlement in recent years. There has been a striking reduction in the number of outstanding claims. The percentage of outstanding claims to claims intimated has come down to 15 in 1979-80 as against 57 in 1956.

After 1979 valuation, the new bonus rates are Rs. 31 for Whole Life and Rs. 24.80 for Endowment policies (the highest ever given by LIC so far). The Life Insurance Corporation introduced the concept of final (additional) bonus for the first time in India on April 12, 1980. This would apply to with profits policies resulting into claims by death or maturity during the period 1-1-1980 to 31-12-1981, subject to certain conditions.



LIC assisted Mangalore Fertiliser Plant

LIC financed Karnataka water supply scheme

LIC transacts Group schemes business mainly under three heads. Group Insurance Scheme designed to provide low cost life insurance cover to working classes and weaker sections of society; Group Gratuity-cum-Life Assurance Schemes providing for the funding of the gratuity payable to the employees at the time of their retirement and also death gratuity to employees based on total anticipated service upto retirement; and Group Superannuation Schemes covering pension benefits after retirement for the employees. LIC transacted a new business of Rs. 5,262.06 crore and covered 9,48,852 new lives under Group Insurance Schemes during 1979-80. Under superannuation schemes the Corporation granted new annuities for a total of Rs. 2.99 crores per annum during 1979-80. The business under Superannuation Schemes covered 5628 new lives.

The total number of Group Insurance Schemes as on March 31, 1980 is 7442 and number of members 58,03,136 and the sum assured Rs. 6137.46 crores. The total number of Group Superannuation Schemes as on March 31, 1980 is 639, number of members 37,730 and amount of annuities per annum is Rs. 15.46 crores.

Though the investment policy of the LIC continues to be governed by the statutory provisions. LIC has consciously and purposefully diverted its investments into new channels which are meant to serve the community as a whole. These socially oriented investments are generally in power (electricity), housing, water supply and sewerage, agriculture, industry and

LIC aided Idikki Dam in Kerala.

transport. The total investments in power on March 31, 1980 were of the order of Rs. 1045 crores (Loans outstanding Rs. 707 crores and Book Value of Bonds Rs. 338 crores).

The LIC grants loans every year to State Governments for financing social housing schemes. Total loans advanced to State governments upto March 31, 1980 aggregated to Rs. 349.04 crores. LIC also grants loans to apex co-operative housing finance societies in the various states for financing their primary co-operative housing societies for construction and purchase of new houses. Total loans advanced upto March 31, 1980 to apex co-operative societies including housing boards and other authorities were Rs. 436.37 crores. The Corporation's loans to HUDCO upto March 31, 1980 were Rs. 55 crores.

Loans for water supply schemes have been advanced to municipalities, Zila Parishads, and State Governments. Total amount advanced upto March 31, 1980 under this category was Rs. 279.22 crores. Loans are advanced to Zila Parishads for providing piped water supply for rural population. So far 50 Zila Parishads in four States have taken advantage of the scheme by taking loans amounting to Rs. 35.92 crores as on March 31, 1980.

LIC's direct investment in the agricultural sector is represented by its investments in debenture issues by cooperative land development banks. The book value of total investments as on March 31, 1980 was Rs. 232.08 crores.

Total loans advanced by LIC to corporate sector in industries were of the order of Rs. 216.34 crores as on March 31, 1980. LIC's investments in the form of shares and debentures in corporate sector amounts to Rs. 314.77 crores.

LIC helps indirectly the small and medium scale industry through its investments in shares and bonds of State financial corporations, Industrial finance corporation, Industrial development bank of India etc. Total investments as on March 31, 1980 under this category were Rs. 150.11 crores (book value).

LIC is also advancing loans for establishing industrial estates thereby providing the necessary infrastructure for the development of small industries. Total loans advanced upto March 31, 1980 were of the order of Rs. 13.98 crores.

For the first time, during the year 1979-80, LIC advanced loans to State road transport corporations for purchase of vehicles, construction and renovation of bus depots, and meeting capital costs of other ancillary facilties. During the year it disbursed loans amounting to Rs. 29.80 crores.

The total investments of LIC as on March 31, 1980 in socially oriented schemes were of the order of Rs. 5390 crores as against Rs. 259 crores in 1957. These figures, it is needless to mention, reflect the phenomenal growth achieved by the Corporation during the last 24 years. □

Energy Saving System

HEATING costs are on the rise everywhere, not just in horticulture, the most intensive agricultural sector. A new energy-saving wall system for all large greenhouse complexes, strongly affected by sky-rocketing heating oil prices, has been developed in the Federal Republic of Germany. Optilux synthetic insulating glass reduced the amount of heat loss through the outer wall by "up to 50 per cent" compared with previously used construction materials. In the case of a northern German gardening business near Oldenburg, this amount of thermal insultation was attained through the use of 6,000 square metres of Optilux panels. The fact that they have a light transparency of around 80 per cent is ideal for plant Growth.

—German News

Community Forestry In Bihar

N. G. Basu*

LONG persuasive discussions, seminars at various levels in Bihar, have resulted in annexing a separate Social Forestry Wing in the Forest Department of the State in 1979. Modest but commendable social forestry scheme has been initiated by the Forest Department in three Divisions of Bihar, namely Ranchi Singhbhum and Santhal Pargana.

Denudation of Forests

Bihar occupies a significant place among the major states of India, so far as forest area is concerned Seventeen per cent of the total geographical area (174,000 Sq. Km.) of Bihar is under forest, and it is concentrated in Chota Nagpur plateau, consisting of six administrative districts, namely, Ranchi, Palamau, Singhbhum, Hazaribagh, Dhanbad and Santhal Pargana. More than 29 per cent of the total geographical area of the plateau consists of forests, whereas the corresponding, all India and state figures are only 22.80 and 16.86 respectively. Chotanagpur plateau is the area where the tribals settled themselves in jungles since the ancient time. People of this plateau, particularly, in the forest area, continue to be the poorest of the poor, inspite of the rich endowment of forest and mineral wealth. In Bihar the total forest land under the forest department is more than 2.9 m.h. Out of which more than 2 m.h. can be termed as protected forests. Roughly 1.0 m.h. of such protected forest under coppice system is failing to respond to coppice regeneration and is becoming increasingly denuded. It is apprehended that if denudation of forest continues at the present rate, by 2000 A.D. all the 2.0 m.h. of protected forests will be completely denuded and the entire Chota Nagpur region will appear as a desert with a trail of all the associated miseries.

Thirty years ago in Bihar the total tribal forest dwellers were about 2.5 million and by 1970-71 their population increased to five million. Thus the increased population pressure on forest resources for survival, coupled with increased commercial demand for forest products by the industries and newly developed towns and urban centres near the forest zone, are creating a situation which may lead to wider destruction of forests.

Nearly 20 per cent of the households living in and around forests combine unauthorised wood cutting and selling that as fuel wood. with other agricultural activities for their own survival. Apart from selling fuel wood to others against cash, all the forest dwelling households depend on nearby forests for their own domestic consumption of fuel wood and fodder for domestic animals. They further depend on forest for the poles to construct new huts, to repair old ones and to make their agricultural equipments and handicrafts like bamboo baskets, ropes etc.

The process of denudation has been accelerated due to the alienation towards the system of forestry introduced by the Government, distrust and harassment of the people living in the forest area, and last but not the least, the deforestation caused by outside forest contractors, who reap most of the benefit of the forest wealth.

How to prevent further denudation of forests in 2 m.h. of protected forest land in Bihar ? The rehabilitation of forests is closely associated with the economic rehabilitation of the forest dwellers, who are primarily tribals. If the development of forests assures generation of direct flow of economic benefit to them simultaneously, people will be associated with the forest development and forests will be preserved and developed. During the gestation period, till the plants start bearing economic fruits, some arrangements to supply the discounted value of the expected future income from the standing plants, as consumption loan is very much necessary. Cooperation between the forest, industry, welfare and finance departments is very much needed for joint planning. Forest development requires, in any case a multidisciplinary approach. Otherwise open violent clashes between the villagers and the people of the forest department are not very infrequent. The famous 'Chipco' movement and the movement to preserve Khunti-Khati right in Khunti-Khati villages are a few of the organised expressions of such a feeling. In Singhbhum District, the Forest Department planted some teak (Saguan) trees but the villagers uprooted all the plants and a clash followed. From the revenue point of view, such trees are highly valuable and the villagers knew it. But these would be of no use to the villagers. They need fuel wood, quick growing poles and foilage to rear Tasar Cocoon, for all these sal trees are best suited, as per their traditional belief. Moreover, there is a belief that the wind blowing from teak trees is poisonous. Similar results may follow in any forest development scheme, if local people's requirements and beliefs are not taken into account and if the people are not taken into confidence and associated with the management. Forest department, no doubt, has good expertise in its own technical field, and quite a good number of imaginative officers, but the social input necessary to deal with the people is very much in need. Can we not associate the claimants of the produce, the villagers in the management of projected forest and such a joint management policy will definitely create a sense of involvement among the villagers which will be the best guarantee for its preservation and development.

The villagers express their apprehension that once they plant trees on their own waste land, it may be taken away by the forest department in future. Widespread deforestation of Khunti-Khati forests is primarily due to such apprehension. If the villagers are associated with the management of protected forests

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* Director, Research and Planning and Secretary, Ranchi Consortium for Community Forestry, Ranchi.

(not reserved forests) and benefits are distributed to the people, actively involved in its preservation and maintenance, the misapprehension of the people about the intention of the Forest Department will gradually disappear and they are likely to come forward to start forest farming on their own individual waste land.

Many potential conflicts between the villagers and the Forest and Revenue Departments may be avoided through amicable settlement of the issues, if attempts be made informally by taking the villagers into confidence. This is the experience of Ranchi Consortium for Community Forestry during the last two years. Because of this type of approach, a good rapport between the villagers and the forest department in this area has been established. Villagers' participation in such social forestry scheme of the Forest Department in the experimental project areas was ensured on the expressed assurance of the Chief Conservator of Forests Bihar that the villagers will get the share of the benefit of such forestry on P. F. land on mutually agreed basis.

The recent survey reveals that seventy per cent of the tribal households in Bihar live under abject poverty and that on an average, a land owning tribal house-hold has 1.5 hectares of land out of which fifty per cent is upland, not suitable for profitable agricultural cultivation. If we plan to utilise such upland, which is uncultivable waste 0.5 million hectare of waste land of private individuals can easily be drawn in forest farming.

Over and above the private waste land, there are 287 Khunti-Khati villages having a large area of forest land under community control. Such Khunti-Khati forest areas if combined with the revenue waste land (uncultivable revenue waste land) another half million hectares of waste land can be drawn under community forestry.

Hence in Bihar, if two million hectares of waste land (protected forest land 1. m.h. plus 0.5 m.h. of private waste land plus 0.5 m.h. of Khunti-Khati and revenue waste land) be brought under community forestry for the economic rehabilitation of forest dwellers it will largely ameliorate their poverty and deprivation. For each household 0.25 hectares of waste land will be just enough for household requirements of fuel wood and fodder. Hence setting aside 0.25 m.h. of wasteland for fuel-wood and fodder, if the remaining 1.75 m.h. of waste land can be used for such forest farming, which may generate additional income and employment for 0.7 million households living under abject poverty, and would get the flow of subsidiary economic benefit on an average from 2 hectare of community forestry, whose money value if properly planned, will be around Rs. 5,000 to Rs. 6,000 per year. In such a scheme not only the poor forest dwellers will economically be rehabilitated, the potential danger of denudation of valuable forests in the remaining 2 m.h. will be prevented. From national point of view if the vast tract of waste land unutilised till today can be brought to economic use the ecological balance would be restored □

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TRENDS

More Rural Banks

ONE hundred and five more regional rural banks are proposed to be set up bringing the total of such banks to 170 covering 270 districts by the end of March, 1985. This is in terms of the projections made for the Sixth Five Year Plan 1980—85.

Tourism Development

Wildlife sanctuaries, mountain and beach resorts, Buddhist pilgrimage places and travel circuits are proposed to be developed to promote domestic and international tourism. The mountain and beach resorts selected for development are Gulmarg, Kovalam and Goa.

The Buddhist pilgrim centres selected are Bodhgaya, Rajgir, Nalanda, Kushinagar, Sravasti and Sanchi.

Short Ayurvedic Course

IN West Bengal a condensed Licentiate Course in Ayurvedic system of medicine is being introduced this year at the R. G. Kar Medical College. The duration of the course will be for a period of two years. Total number of seats available in the course are 82. Application forms will be available from the office of the Principal R. G. Kar Medical College, Calcutta.

Haryana Drinking Water Scheme

MORE than 200 villages in Haryana were provided with potable water during the last year at a cost of Rs. 10 crore. Construction work in 956 villages has been going on. Another sum of Rs. 10 crore has been earmarked for the Rural Water Supply Scheme for the year 1981-82.

New Urban Policy

THE Minister for Works and Housing and Parliamentary Affairs, Shri Bhishma Narain Singh, has said that the thrust of the urbanisation policy during the current plan period will be to reduce the rate of migration of population to metropolitan and large cities and promote the development of small and medium towns. "Our plans for the next few years, therefore, include a substantial component of investment in urban areas", he added. Shri Singh, who was addressing the Central Council of Local Government and Urban Development and the State Housing Ministers at New Delhi recently said that this investment should ensure that it also serves the interests of rural areas surrounding the towns. He urged the Confrence to discuss measures for accelerating the tempo of developments in the urban areas. While doing this, however, due attention should be paid to the conservation, landscaping and environmental aspects of planning, he said.

The Minister indicated that another momentous scheme which had been given priority by the Government was the environmental improvement of slums in the urban areas. The slum dwellers constituted the majority of urban poor and their welfare was legitimately the concern of the Government. He said the State Governments had been requested by his ministry and the Planning Commission to provide sufficient funds under the Minimum Needs Programmes to cover atleast 50 per cent of the slum dwellers during the current plan period.

The Minister said the thrust of the housing programme in the current five year plan would be to meet the needs of the economically weaker sections and low income group categories.

WB Community Physicians

THE West Bengal Government has decided to set up six institutes for training community physicians distinct from medical graduates. The first of such institutes was opened at Berhampore, in Murshidabad district on January 7. The other five institutes will be located at Balurghat (West Dinapur Distt), Jalpaiguri, Darjeeling, Midnapore and Purulia.

Creation of such Community Physicians is necessary since doctor-population ratio in the rural areas is appallingly low.

Entire public health administration is being organised on the basis of the multipurpose scheme which enjoins upon grass-root health workers and the Health Supervisors to do multifarious health jobs, requiring guidance and integration of those activities by physicians at subsidiary and primary health centres level.

By taking health care to the door steps of villages preventive, promotive and rehabilitative aspects of health care will also be looked after besides providing curative treatment. The training in the Diploma Course in Community Medical Service would be conducted in a rural set-up having the needed community bias and it conforms to the current internationally accepted views regarding delivery of positive health care to the community at large.

Rich-Poor Gap in Rural Areas

THE gap between the minimum and maximum incomes seems to have increased in the rural areas as the share of the top 10 per cent households has gone up while that of the bottom 10 per cent has gone down, between 1972-73 and 1977-78.

In the urban areas the shares of both classes declined, according to a written answer given by the Planning Minister, Shri Narayan Datt Tiwari in the Rajya Sabha recently.

The All India average monthly per capita consumption expenditure was Rs. 51.63 in 1972-73 and Rs. 82.58 in 1977-78.

Phone Factories in 6th Plan

Indian Telephone Industries Ltd. Rae Bareli will have a unit with production capacity of 2 lakh (equivalent lines) of crossbar telephone exchange equipment at a capital cost of Rs. 64.50 crores.

It is being considered to increase the capacity of 10,000 lines per annum of small electronic exchanges of the Indian Telephone Industries Ltd. Palghat to 1.5 lakh lines per annum by including manufacture of Electronic Trunk Automatic Exchanges and Rural Auto Exchanges at an estimated cost of Rs. 15.95 crores.

The Government have also decided, in principle, to set up two Electronic Exchange Factories during the eighties.

Books

Gita As Management Handbook

The Bhagavadgita : S.L.N. Simha; Birla Academy of Art and Culture, Calcutta; Pages 106 : Price Rs. 15/-.

THE author of this slim and handy book on Krishna's exposition of the fundamental tenets of the Vedic Philosophy and religion has subtitled it 'A Layman's Offering'. For a layman, he has done a neat and thorough job of his offering. He has first mapped out the terrain of the quest, the goal and the various paths that cross and recross in leading to the goal. He has shown that the Gita expounds both the moralities that Lindsay had talked of in this book, the morality of one's station in life and the morality of challenge to perfection. It is a layman's temptation to stress only the former morality in expounding Gita in the context of the shibboleths which the idola fori mindlessly mouth. The author has dutifully pointed out Gita's relevance to political, economic, journalistic, and diplomatic (the author is perhaps the first to relate Gita to diplomacy) behaviour In the words of the author, obviously a management luminary in big business: "Of course, it is also a book of practical ethics. It is an excellent management book for our daily life, whether at home or in the field and factory or in the office. It is also a book which preaches a lot of socialism. ...However, the book is more than all this. The essential aspect of it is that the efficient performance of duty in a spirit of renunciation, the development of noble traits and a feeling of absolute equality must all be done as Yajna or offering to God. That is to say the student of the Gita must be one seeking spiritual development." Poor Krishna ! He should have known that he was inevitably bargaining for the reversal of his priorities. It is the privilege of the management experts to reorder the priorities, socialism, secularism and then spiritual development. How refreshing to read for a change : "But seek ye first the kingdom of God, and his righteousness ; and all these things shall be added unto you." But Christ's ministry was of his Father, not in the Government. He proved that he was a bad manager, he could neither have bought votes in a board meeting nor got men to cross the floor in the Sanhedrim.

S. V. Seshadri

Public Sector

Prospects for Ancillaries/Auxiliaries to Public Sector Undertakings—Published by Indian Investment Centre, New Delhi; pages 112; Price Rs. 20/-

INDIAN Investment Centre is a promotional agency set up by the Government of India to advise and assist the prospective entrepreneurs, both Indian and foreign, who are interested in setting up industrial ventures. As a part of its promotional activities, the Indian Investment Centre has been bringing out a series of Entrepreneurial Guidance Brochures. The publication under review is the fifth in the series and provides information on 22 public sector undertakings. It lists items that are being imported by these public sector undertakings and also indicates the areas which offer scope for establishment of anciliaries/auxiliaries.

This brochure would be found useful by the entrepreneurs desirous of establishing ancillary/auxiliary units around public sector undertakings.

Sethu Rao S.

Kisan At Crossroad

Indian Farmer At crossroad : Daya Krishna; Published By Swan Publications, New Delhi; Price Rs. 60.

DAYA Krishnas 'Indian Farmer at Cross-road' is a collection of papers on various aspects of rural development ranging from agrarian reforms and rural credit to bonded labour and tribal development. The range of topics covered is so wide that it would be unfair to look for any profound analysis of any of the problems or any hitherto unheard of conclusions from these pages. Why certain topics are included and why certain other crucial questions of agriculture and rural development are not included cannot be explained either. The fifteen essays included in this volume offer a useful introduction to many important issues particularly to the uninitiated.

A historical survey of various rural development programmes in India, starting with the Community Development Programme and Intensive Agricultural Development Programme and ending with the current Integrated Rural Development Programme is provided by the author. That poverty will tend to remain unmitigated inspite of steady and significant increases in national income is now taken for granted. The need for special poverty amelioration programmes is also conceded. However when it comes to the question of identifying really effective investment programmes and legislative and administrative measures required for poverty amelioration in a given economy and a political context, we are confronted by diverse options and the choices among them will have to be governed as much by political considerations as by economic and technical criteria. The account provided by Daya Krishna of the Indian approach to rural development does not touch upon these dilemmas. Nor does it clearly bring out the achievements and limitations of programmes like SFDA, DPAD and Food for Work Programme. Many competent studies on the performance of these programmes in various parts of the country are available and it is a pity that the author does not make any reference to the conclusions emerging from such studies. The references to the Antyodaya programme and the rehabilitation of bonded labour are equally perfunctory.

The Chapter on Foodgrain Production indicates the main trends in the output of foodgrains and other commodities over the last quarter century. Even here crucial questions relating to the uneven performance in the various parts of the country in raising production and productivity are not dealt with. Similarly, a virtual inability to bring about a breakthrough in the production of certain non-cereal crops also escapes tht attention of the author.

The review of Land Reforms throws light on some aspects of our land reform policy and performance. However, the author has not gone into the inherent contradictions in the system which continue to make it difficult to achieve any significant redistribution of land in most parts of the country The fact that land-reforms are no longer in the forefront of such feeble domestic debate as we have on economic issues in this country is itself a possible measure of the frustration and disillusionment we have encountered in implementing agrarian reforms.

The chapters on Hill Area Development and Tribal Area Development are the most insubstantial among the papers presented in this volume. That tribal agriculture is only one facet of tribal life and that changes in agriculture in such societies can come about only through changes in other facets of life is to be understood. A pre-occupation with an isolated issue like shifting cultivation has already shown the inefficacy of piecemeal solutions. On the whole, 'Indian Farmer at Crossroad' is to be welcomed for what it says because this would be a useful guide for the beginner. One word about the title. If the Indian farmer is really at crossroads, the contents of this volume do not tell the reader how and why our Kisan is at crossroads and where he is likely to go. To that extent, the title is a misnomer.

C. N. S. Nair

Guidance to Line Managers

Accountancy For Managers by Dr. J. Batty; Allied Publishers (P) Ltd., New Delhi; Price Rs. 20.

THE author, a well known authority in the field, has brought out a useful handbook for guidance of "line managers" without accountancy background to digest the figures presented by management accountant when confronted with decision making. Beginning from fundamental concept, the author has gone ahead developing the subject gradually so that the line manager can come to grips with the problem. Cost data plays a significant role in evolving management policies while carrying on the activities. Some of the important aspects of control as inventory, material cost and labour costs are well explained. Control and allocation of overhead costs which have assumed significant dimensions in present age of high mechanisation in industries have been dealt with in a brief but clear manner.

Marginal costing technique employed in tackling special problems as make or buy, lease or own, has been explained succinctly along with its limitation. Standard costing method adopted by an increasing number of good firms has also been written in a lucid manner so that line managers can understand and interpret the variance reports properly. The chapter on cash management would be very useful to non-accountancy managers in the present day context of stringent financial conditions and difficulty in managing adequate working capital. Preparation of cash budgets and ratio analysis to assess company's position have found a prominent place in the chapter. Information on preparation of capital expenditure budget and assessment of relative merit of various projects would be a useful addition to the knowledge of line managers. The last chapter on presentation of information to various levels of managements as "profit analysis report" would help line managers to appraise such reports in their proper perspective. To sum up, the author, as per his objective, has succeeded well in producing a book on reading which non-accounting managers would profit immensely.

D. P. Rangan

Urban India

India's Urbanisation 1901-2001—revised edition; Dr. Ashish Bose; Tata McGraw Hill Publishing Co., Ltd.; Pages 608; Price Rs. 120.

DR. ASHISH BOSE is a well known expert in demography and allied fields. Although his book under review is primarily concerned with the demographic aspects of urbanisation, the author has not lost sight of other aspects of the issue. The findings of his study on land speculation, land prices, house rent, etc. and the impact on the neighbourhood of Delhi forms the base for study of economic aspect of urbanisation. The author's analysis of the growth of cities and towns in India, decade by decade, and his discussions on the implication of the projection of urban population for the three decades 1971 to 2001 AD bring out clearly the root cause of the present economic stagnation.

The material in this book is organised in seven parts. The seventh part contains the statistical profile of urban India and rural-urban contrasts, lists of tables, authors' index and subject index.

Part I gives a overview of the process of urbanisation in India in historical perspective, with some emerging issues. It deals with mainly the problems like urban society, urban economy, migration, urban administration, role of big cities etc.

Second part deals with the concepts, definitions and sources of data. It deals with appraisal of census data on urbanisation and their limitations. It also contains some valuable suggestions regarding new census questions related to urbanisation. Issues like the urban growth in India since 1901 and its projection upto 2001 are discussed in the next part.

Part IV of this book, deals with the problems of internal migration. It analyses the migration stream based on 1961 census and also discusses migration and linguistic dispersal in India.

A case study of urban Delhi, dealing with land prices and land speculation from 1947 to 1967 is incorporated in part V.

Part VI is devoted to urban planning and policy, covering a number of issues like urban growth, through rural development and population distribution and so on.

In this book, Dr. Bose has dealt with almost all aspects of urbanisation viewed from demographic, economic, sociological and political angles. However one aspect of urbanisation in India which has escaped his consideration is the factor of "Compulsion". This factor of compulsion will force India to take revolutionary steps to improve the rate of urbanisation to a much higher degree than that envisaged in the book during the next twenty years to bring it to the level of western world if India has to survive as a nation.

India's Urbanisation is another example of Dr. Bose's ability to handle an extremely complex problem with ease and comprehension. It is a scholarly work. The massive data and information given in this book should be very useful to all those who are interested in general economic planning, preparation of master plans for individual towns and cities and allied activities

Biman Sen

Public Enterprises Management

Principles and Practice of Public Enterprise Management—by Prof. Laxmi Narain, Published by S. Chand & Co. Ltd., New Delhi, 1980. Pages 515, Price Rs. 18.

PUBLIC ENTERPRISES have a very significant role in developing countries and specially those whose goal is the Socialist Pattern of Society and who have adopted a system of National Planning. In India the public enterprises were set up in consonance with the goals laid down in the National Plans, i.e. to attain self-reliance, to remove poverty to accelerate the growth rate of agriculture and industrial production, to remove unemployment and so on. After passing few lean years in the initial stages, today public sector has come to occupy a pivotal place in the Indian economy and are now fully concerned with the manufacture and distribution of and trading with the core and basic materials, heavy and light engineering goods, chemicals and petroleum products, consumers goods etc. Nevertheless, this sector being a public property. its managements are always exposed to public and the Parliament for each and every decision and for any sign of indifference in its financial results. It has to be accepted that any attainment of objective by the public enterprises suffers from certain inadequacies in quantification and there are certain elements of subjective assessment which are to be noted while evaluating public sector performance. Because of the presence of of these subjective considerations and the vast coverage the public sector has in present days, the role of public sector management has become so much important and critical. One has to understand, appreciate and analyse the problems experienced by the public sector managements whose responsibilities are very much different from the responsibilities of the managers in the private sector which are run solely on profit motive, and it is exactly here that one needs to have a comprehensive knowledge about the role of public sector in the economy, the problems they face in their functioning and the different agencies there are at the government level to control the enterprises, and their functions etc., to have an idea on the constraints under which this important segment of the economy is functioning and also on the efficacy of the applications of appropriate management techniques in getting through such situations. Prof Laxmi Narain's book, "Principles and practice of Public Enterprise Management" aptly meets this purpose.

Starting from the historical evolution and the growth of public sector, the book deals with almost all the aspects of public enterprise management. In seventeen chapters, the author has dealt in great detail each and every functional field of public sector management the knowldge of which is a must for all public sector managers and students on the subject. Presently a debate is on about the extent of autonomy enjoyed by the enterprises and the extent to which they are accountable to the Government and the Parliament and how do these effect the 'decision making' by the public sector management. These issues are dealt with in depth in the two voluminous chapters in this book. The author is considered to be an expert on the public sector management and his rich experience and knowledge on the various issues connected with this sector are reflected through the pages of this publication and one is bound to benefit out of this laborious work of the author. Coverage, style and simple language of the book make it a worth reading. The real utility of this publication is not reflected through the modest price fixed for this book (Rs. 18.) and this acts as enough proof of the genuine good intentions of the men behind its publication for reaching to the students who are genuinely desirous of acquiring knowledge on the subject. Contents of the book make it most useful for every manager and student and its get-up makes it a worth addition in any Library.

S. Banerjee

Collective Security

India's Security in Resurgent Asia: By Ajit Singh Sarhadi: Heritage Publishers, M-116, Connaught Circus, New Delhi; 1979. Pages 308. Price Rs. 80.

THIS book gives a brief and illuminating account of the political and cultural history of India and her neighbours. The struggle for independence, freedom from foreign domination in many countries is also dealt with in a concise manner.

The author who had been in the thick of the Sikh Resurgence movement since the early 1930s describes how religion had been mostly at the root of nationalism in different countries. The author does not, however, give any decision of his own about the genesis of nationalism in these countries. He also contends that religion, culture and language were dominant factors in forgoing nationalism of South Asia and its adjoining areas. One does not know what other factors determined a sense of nationalism in other countries.

The main thesis of the author seems to be to emphasise the need for collective security among the nations in this part of the globe to maintain peace and progress. But he fails to spell out the essential ingredients of this concept of collective security.

However, the book concludes by favouring a revival of the ancient traditions of tolerance, liberalism and open door policy. This should be ideal; but how many too soon swerve away from this ideal is a matter on which no forecast can be given.

The book is useful for its conciseness and penetrating understanding of the potential psychologies of different neighbouring nations in the Asian continent. It would thus be immensely useful to future students of politics and political developments in this part of the world.

—E. P. Radhakrishnan

STEP BY STEP

Progressive Tribal Farmer

JUST three years ago Karunakar Naik of Sihkulabahal village under Telkoi Block in Keonjhar district or Orissa was a poor tribal cultivator. He was having some unirrigated land. But in spite of hard labour he could not produce sufficient crop to maintain his large family.

In 1977 he fortunately came across a dedicated young Agricultural Extension Officer who after listening to him decided to help him overcome his difficulties. Under his able guidance Karunakar raised a mango orchard in three acres of land. He purchased a pumpset by getting loan assistance from Telkoi Lamp He then grew a high yielding variety of paddy and other crops in three acres of land. The yield was satisfactory and he earned a profit of Rs. 750. Next year he raised a high-yielding variety of paddy in ten acres and pulses in another two acres. He reaped a bumper harvest of 80 quintals of paddy and four quintals of pulses. He. thus, earned Rs. 6000. In 1979 he produced 100 quintals of paddy and five quintals of pulses from the same land. This year he has purchased a patch of land measuring about six acres near a perennial source of water. He plans to grow vegetables here. Now his example is being emulated by other farmers of the area. In recognition of his achievements he recently received district level award as a progressive tribal cultivator. This has given him great encouragement and he is devoting himself to agriculture whole heartedly.

M. P. Panda
F.P.O.
Keonjhar

Bhamri Bai Starts Life Afresh

BHAMRI BAI 50, is an Adivasi woman of Malia Barkheda village, Guna district, M.P. She was the owner of three hectares of land for the last 35 years but some non-tribal landlord had deceitfully dispossessed her and she had been living under great economic hardships. Some months ago the State Government had decided to restore the lands of tribals which were in the illegal possession of non-tribals. Bhamri Bai approached the officials at Raghogarh tahsil headquarters and the officials promptly restored her lands back to her. She not only got back her land but was also allowed to reap the standing harvest of Juar crop. Further with the financial assistance extended by the bank at Raghogarh, she had decided to convert her dry field into irrigated land. Her two sons, Kamal and Amar who made a living by collecting fire-wood have now become the owners of three hectares of land

A Science Graduate Sets up Dairy

IN TIRUCHIRAPALLI a science graduate, Shri M Thiruvallavan was looking for a job in vain. He approached the Tiruchy Branch of Syndicate Bank for financial assistance to establish a Dairy Unit. Acknowledging his entrepreneurship the Bank extended a loan of Rs. 35,000 under the self-employment scheme. He spent Rs. 10000 for the erection of Cattle-Shed and the remaining amount of Rs 25,000 was spent towards the purchase of six murrah buffaloes and two Jersy cows. This loan amount was given by the Bank in January, 1980, at the interest rate of 10.5 per cent. He is repaying the monthly instalment of Rs. 750 regularly. Now he is earning a net income of Rs. 500 per month even after meeting the commitments towards instalments and interest on the loan. His repayment amount will last upto 40 months. About 70 litres of milk a day is marketed by him locally. The milk vendors collect the milk at his door

S. Subramanian, FPO, Tiruchirapalli

An Educated Unemployed Begins Farming

SRI A. GHOUSE SHERIFF a resident of Kaimalai in Tiruchirapalli Town was an educated unemployed youth about 6 months ago. With the objective of raising a poultry unit, he erected the poultry-shed for 750 layers and purchased accessory equipment. However, he found it difficult to meet the expenses for purchasing chicks and feed. He approached the local Syndicate Bank Manager who extended a helping hand immediately and advanced loan of Rs. 15,000 under the self-employment scheme. He reared chicks sincerely and the birds have just started laying. He markets 200 eggs a day from this poultry unit. In another 3 to 4 weeks he will be in a position to make profit. He is to pay Rs. 1250/- a month for 12 months.

FPO Tiruchirapalli

Nizamabad Youth Show the way

YOUTHFUL ENERGIES found a constructive channel when one hundred youths from 25 youth clubs of the Nizamabad District joined their tribal brethren to raise a colony at Yedapalli of Bodhan panchayati Smithi, recently. The Nehru Yuvak Kendra, Nizamabad sponsored the weeklong camp beginning on the 26th of September and ending on the 2nd of October the Gandhi Jayanti Day.

The colony has been set up under "Sites and services" programme of the Andhra Pradesh Government to solve the acute housing problems of the rural poor of Yedapally. The State Government has acquired 4.4 hectares of land divided it into 158 plots and allotted it to landless and other people belonging to the backward classes.

Under the programme carried out by the Panchayati Smithi bulding material like bamboos worth Rs. 200 is given to each allotte. To compensate for the time spent on building the hut price worth of Rs. 200 is also given gratis.

During the week the youths expressed their solidarity with the weaker sections of the society by setting up a camp in the village and offering shramdan. Through their dedicated service, the youths formed internal roads in the colony, dug drainage channels and constructed the basic structure of the huts in a systematic manner. More important than their shramdan is the spirit of oneness and community living which pervaded the village during the week.

M. S. Krishna Rao
FPO, Nizamabad

Students Take to Afforestation

THIRTY students of Giriraj Government College, Nizamabad took up afforestation programme during monsoon, this year, in the nearby Mimidipalli forest area under National Service Scheme. They planted 3,500 bamboo saplings during the three-day camp, with the active cooperation of the State Government officials belonging to the forest department. The students also made the nearby villagers aware of the need to protect the forests and grow more trees for the common weal.

F.P.O , Nizamabad.

Ikshu Pandit Award

THE 'Ikshu Pandit' award for obtaining highest yield of sugarcane during 1978-79 has been bagged by two persons—Shri Vijendra Dutt of Nainital district, Uttar Pradesh and Shri Fakkad Bala Gath of Kolhapur district, Maharashtra. Shri Dutt won the first prize of Rs. 2,500, a gold-plated silver medal and a certificate of merit, for growing 201.82 tonnes of sugarcane in a hectare in the subtropical region and Shri Gath for growing 338.15 tonnes a hectare in the tropical region.

Other states running up for silver medals are Nagaland 132.4 tonnes and Gujarat with 155.8 tonnes in subtropical and tropical belts respectively.

Cooperative Sheep Rearing

COOPERATIVE sheep rearing scheme has made significant progress in the drought-hit Anantpur district of Andhra Pradesh. Now the number of sheep rearing societies has risen to 45 and scientific rearing has come to stay as a concept. This scheme started under the Drought Prone Area Programme has helped improve the quality of stock by crossing the native Bellary breed with the superior Australian Corriedale. The hybrid stock yields better wool in increased quantities. The growth of the animal is also faster. The crossing of the stock with Corriedale has also improved the fertility and fecundity of the sheep. Six more such societies are proposed to be set up during the Sixth Five Year Plan.

Milk Supply for Calcutta

Milk Supply to Calcutta city by rail (milk) tanker from the Sangam dairy in Guntur district, Andhra Pradesh has started. This has heralded a new era of supplying liquid milk to the eastern milk grid. As per the agreement between Guntur district milk producers cooperative union, who are managing the dairy and the Calcutta Mother Dairy authorities, 42,000 litres of liquid milk will be supplied per week by rail tanker arrangement. However, from November next year one rail milk tanker of 42,000 litres will move daily to Calcutta from the dairy at Sangam. The expansion project of the dairy to handle three lakh litres of milk a day at a cost of Rs. 255 lakh is expected to be completed by September 1981.

Flu Vaccine

A Group of Leningrad scientists led by Sergei Bresler D.Sc. (Chemistry) have developed and introduced into practice a new method of obtaining inactivated flu vaccine.

This method is based on the principle of the chromatographic separation of substances. The vaccine thus obtained has helped in reducing considerably the incidence of flu among the population of Leningrad.

Rural Development by SBI

IN Bihar Agricultural Development Branch of the State Bank of India is plalying an important role in socio-economic uplift of the rural people of Banka sub-division. Since its inception in 1976 the branch provided financial help to about 4,00 farmers in about 200 villages under village adoption scheme. The Manager of the branch, Shri Umakant Jha, told newsmen that the bank had given loan assistance of Rs. 1.35 crore to the small and marginal farmers, agricutlural labourers and weaker section of the society.

FACT Makes Profit

THE Fertilisers and Chemicals Travancore Limited has made a profit of Rs. 5 lakh in the year 1979-80. This is the highest profit made by the FACT so far in the past 35 years. The production of fertilisers in the Company for 1979-80 in terms of nutrient Nitrogen stood at a record figure of 1,63,475 tonnes making an increase of 9 per cent over, 1,49,978 tonnes attained during the last year. Similarly producion of Phosphorous Pentoxide was also a record at 69,219 tonnes which marked an increase of 4 per cent over last year's production of 66,796 tonnes. ☐

Sheep Breeding Farm Makes Progress

THE Sheep and Wool-Research and Development Division of the Raymond Woollen Mills at Dhule in Maharashtra has made significant achievements. The Division was set up in 1970 to produce and distribute a flock of fine wool sheep to breeding farms all over the country so as to reduce the country's dependence on wool imports. It produces cross-bred rams and distributes them throughout the country to improve the quality of carpet wool. At present the farm has 5,000 exotic and cross-bred sheep and till now it has supplied about 1,200 exotic and cross-bred rams to various Central Sheep breeding farms and shepherds. The farm can now supply 500 exotic and 750 cross-bred rams annually.

Koo Babool

AN exotic shrub from Central America that has come to stay in Madhya Pradesh, Leucena Leucocephala (locally named is Koo Babool) is a versatile shrub capable of withstanding the rigours of heat and drought and thrives practically under all soil conditions and topography. It grows particularly well under irrigated conditions and yields up to 100 tonnes of fodder and 60 tonnes of fuel per hectare per annum and its survival is nearly cent per cent.

Exchange Earnings of Indian Airlines

THE foreign exchange earnings of Indian Airlines touched an all time high of Rs. 56.21 crore in 1979-80. It is an increase of 19.5 per cent over the previous year's Rs. 47.02 crore.

During that year 7018 foreign tour groups travelled by Indian Airlines and of these 120 consisted of over 75 members. To facilitate these group movements the airline operated 191 additional flights.

The Airlines carried 5,383 million passengers against 5,326 million in the previous year with an operating revenue of Rs. 205.05 crore.

Profit From Public Sector

AT an informal function held at Rashtrapati Bhavan in New Delhi recently, President Neelam Sanjiva Reddy said that the pace of industrial development should be accelerated, the public sector should improve its performance and profitability, and steps should be taken to increase the production of essential inputs such as cement and steel.

The President made these observations after receiving from the Minister of State for Industries, Dr. Charanjit Chanana two cheques of Rs. 7.8 crore and Rs. 2.23 crore representing six per cent dividend declared by the Bharat Heavy Electricals Ltd. and the Hindustan Machine Tools, respectively, for 1979-80.

President receiving the cheques. Dr. Charanjit Chanana, Minister of State for Industries is also seen in the picture.

A.P. Construction Corporation

THE Andhra Pradesh State Construction Corporation Limited was formed in July, 1973 as a State Government Enterprise, to break the monopolistic tendencies and collusion amongst the contractors for quoting prohibitive rates and to exert a healthy influence on the contracting profession by keeping down the prices at fair and reasonable level. The Corporation undertakes construction of major projects like irrigation works, building works, roads and bridges, structural works, sanitary and water supply works and provides consultancy services for construction of all types of civil engineering works.

The Corporation executed works of the value of Rs. 73.00 crore till June 1980. These works included construction of major concrete dams like Srisailam, using cableways, crushing plant and cooling plant, Lower Manair Dam, specialised works like canal lining with machinery in Sri Rama Sagar Project, construction of multistoreyed buildings at the secretariat complex, State Assembly buildings, works connected with major Central Government undertakings like Steel Authority of India Limited at Visakhapatnam Steel Plant, and National Thermal Power Corporation Limited for Super Thermal Station at Ramagundam and Industrial Housing at Singareni Collieries at Godavarikhani, buildings for A. P. State Electricity Board and construction of sugar factories. Srisailam Dam is the highest Hydro Electric dam under construction in India.

The Corporation has been able to train a number of engineers in highly skilled and specialised jobs, in handling complicated and sophisticated machinery such as pavers, trimmers, winches, cableways, crushing plants, batching plants, cooling plants etc. It has also on its rolls qualified and trained financial managers and other categories of general workers. Its consultancy wing has successfully designed and constructed a few sugar factories in the State in the co-operative sector. It may be stated that the Corporation has come of age and is now in a position not only to execute the works within the State but is also in a position to offer guidance and consultancy to other agencies in the State as well as outside. It is planned to secure sufficient number of works so that a minimum turn-over of Rs. 20 to Rs. 25 crores per annum is achieved. The Corporation has a programme of work of Rs. 23.00 crores during the year 1980-81. □

Licensed U (D)-52 to post without pre-payment at Civil Lines Post Office, Delhi

Raju proudly shows his lush green sugarcane field to the press party.

The Story of Raju and Suphala

SHRI Raju a young Science Graduate, resisted temptations of white collar jobs and decided to seek his destiny on a barren land in his village Konasale of Mandya district in Karnataka. A few years ago, he was racking his brains as to how to transform his barren land into a useful and productive land. Shri Raju realised that the basic need for good yield was to find what the soil needed. He got the soil tested freely at the Loboratory of the Rashtriya Chemicals and Fertilisers (RCF). They advised him to use Suphala and gave all the instructions to cultivate the land along scientific lines. Thanks to Suphala, sincere efforts of Shri Raju and expert advice given by the band of dedicated scientists of the RCF, he could harvest 78.72 tonnes of sugarcane per acre in a new tract which had not been traditionally put under sugarcane, against only 40 tonnes the average yield per acre in the fields of the Mandya district.

Shri Raju further diversified use of Suphala in such varied crops like banana, groundnut, chillies and vegetables, particularly ashguard. Shri Raju harvested ashguard treated with Suphala weighing as much as 45 kgs. compared to the normal weight of 15 kg.

Kokila Mani, a physically handicapped girl, learning tailoring.

Self-Employment

A training of rural youth for self-employment under Integrated Rural Development Programme has been undertaken at Thondamuthur, near Coimbatore. In the scheme, 22 girls, mostly belonging to backward classes are undergoing tailoring course for six months. Each trainee gets stipend of Rs. 100 every month and an amount of Rs. 50 for materials. The trainees are confident of taking up tailoring for self employment. Kokila Mani a physically handicapped girl is also utilising this opportunity to be self-reliant in future.

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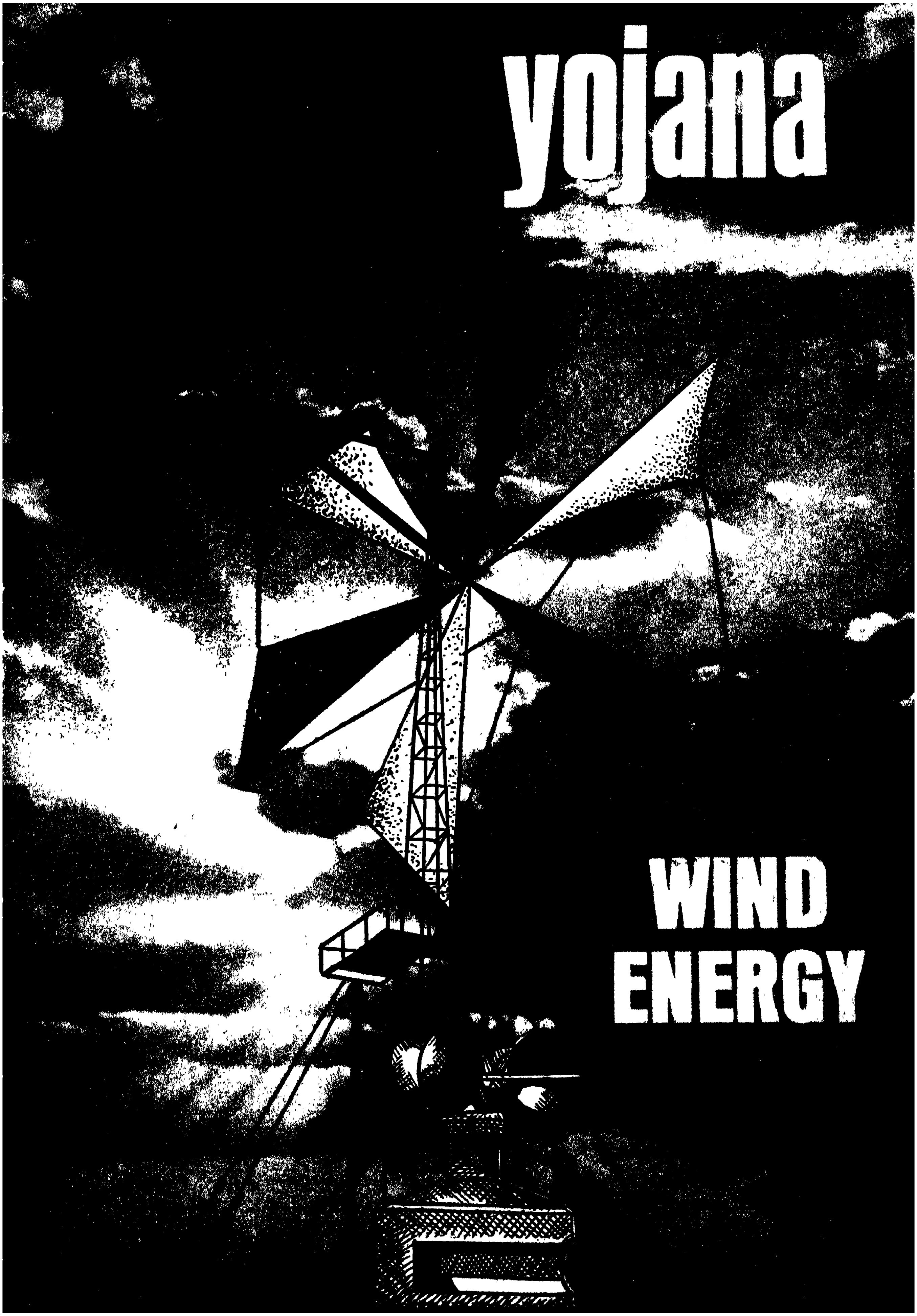

WIND ENERGY

An agricultural labourer in his poultry farm

Prosperity Through Poultry the Bakkanapalem way

A. Rama Krishna Rao*

BAKKANAPALEM VILLAGE near Visakhapatnam in Andhra Pradesh had been like any other village in India till recently. The agricultural labourers of the village used to collect firewood from the nearby Simhachalam forest and sell it to earn their livelihood. Though the government had assigned 80 acres of land to them they could not utilise the same for any productive purpose due to lack of irrigation facilities and money for cultivation. But with the establishment of Small Farmers Development Agency and Scheduled Castes and Backward Classes Financial Corporation, the life of agricultural labourers has completely changed. A co-operative society was formed to conduct agricultural operations on the 80 acres of land assigned to them. The agricultural labourers offered Shramdan to level their own land, to raise the bunds, lay field channels and take soil conservation work. They were given rice and wheat under the food for work programme. Thus the task of improving the land has been accomplished. In the second stage with the cooperation of the ground water department at selected places six community wells for irrigation purpose were dug in the

(*Contd. on page* 32)

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*Correspondent, AIR, Visakhapatnam.

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Editorial

New Stage in Nation-building

THE final draft of the Sixth Five Year Plan has been approved by the National Development Council a fortnight back. Even the leftist Chief Ministers of Kerala, West Bengal and Tripura, who expressed dissent, have otherwise assured to implement the Plan vigorously. The hard work of the Planning Commission in preparing the Plan in record time has been appreciated all round. The new addition of a chapter of policy suggestions has also been widely welcomed. The effective implementation of Plan will be facilitated if the government's policies correspond to these suggestions.

The outlay on public sector in the Sixth Plan is 80 per cent more than that in the Fifth Plan in real terms; the share of the public sector in the total outlay has also been increased from 45 per cent to 53 per cent. The share of the States in the public sector outlay is a little more than half. A considerable part of the investment will be made in the ongoing projects so that they might generate output quickly. The Plan also lays emphasis on fuller utilisation of existing capacity and increasing productivity, which themselves can increase production to an enormous extent. In sectoral allocations, the Plan gives priority to strengthening the infrastructure items so that both agriculture and industry can grow faster. With regard to social justice, the Plan attaches more importance to raising the level of poorer sections than levelling down the richer sections. The Plan expects substantial mobilisation of additional resources for implementing the projects.

Critics of the Plan point out that, according to the past experience the growth rate of 5.2 per cent, the expectation of States mobilising considerable resources, substantially reducing the subsidies, the slashing of deficit financing, generating enormous surplus in public sector undertakings and reducing non-development expenditure, are over-optimistic. They also feel that the continuing inflation may further erode the Plan investments in real terms. The expectation of reducing the population below the poverty line from 48 to 30 per cent is also doubted since the allocation for anti-poverty programmes has not been increased and since redistributive measures such as land reforms are not given due importance. The ever-increasing price of imported oil, the rising cost of foreign capital goods, growing protectionism in advanced countries and the cold wars shadow near our borders may also adversely affect our economy.

While the foreign developments cannot be controlled by us, it is within our power to reverse the past tendencies of inefficiency, financial indiscipline, yielding to sectional pressures, tardy implementation of projects, corruption, black money, law-breaking, etc. Whatever might be the arguments about the details of the Plan, it has to be admitted that the development envisaged in it is the minimum without which the economy will stagnate and even decline. The Plan not merely contains what can be done but what should be done with a little more effort. The improvement in the past five months in the economy in general and in the performance of the public sector in particular shows that nothing is impossible if there is a strong political will.

The Prime Minister has explained as to why progress in democratic planning is rather slow, how the people in the top bracket take greater advantage, of development programmes and the need for creating wealth before distributing it. As mentioned by her, the Plan is not just an enumeration of projects but 'a direction' and a charter for progress'. The conditions for the success of the Plan, as pointed out by Smt. Gandhi, are industrial peace, law and order in general, resource mobilisation and united hard work. The nation has to fulfil these conditions so that it can take another giant step towards prosperity.

A New Charter for Progress

Indira Gandhi*

I WELCOME YOU ALL Chief Ministers, other Ministers and my colleagues in the Central Government. In the National Development Council last August, we decided to expedite the Sixth Plan exercise and to bring the Plan before the National Development Council in early 1981. We have adhered to this schedule. The National Development Council should place on record its appreciation of the effort of the Deputy Chairman, the Members and the staff of the Planning Commission whose hard work has made this possible.

The Plan of Rs. 97,500 crores with a projected growth rate of just over 5 per cent is the best we could do in our present circumstances. Some feel it has not gone far enough. Others say that even for this size, it will be difficult to mobilize resources. Perhaps the correctness and appropriateness of the size of this Plan will be established, as it represents the optimum effort between what is highly desirable and what is just possible. Only by reaching out far more than is in our grasp we can bring out the best in ourselves.

To us, the Plan represents more than just outlays and growth rates. It implies a commitment to the objectives of development, to the revival and revitalisation of the process of planning after a dark spell.

Achievements

In successive five year plans over the last three decades, we have achieved significant progress in several directions. The production of foodgrains has achieved a measure of stability that enables us to manage drought years without importing foodgrains. Industry has gathered strength and considerable sophistication. Our technical and scientific progress, our accomplishments in space technology and the adaptation of appropriate technology in industrial products are indeed encouraging. Our scientists have given a good account of themselves as increasing areas of activity have acquired scientific content. Yet vast potential remains untapped. We must make fuller use of our modern science and technology to advance our social and economic objectives.

The industrial structure has been diversified and thanks to our policy of import substitution, which now allows us to consider measures for liberalisation which we began introducing from 1975-76 in many areas it can now successfully withstand foreign competition. Today we have reached a phase of industrialisation where it should be possible for us to pay for our inputs by the export of manufactured sophisticated engineering products and other non-traditional goods.

We undertook planned development to eradicate poverty, reduce inequalities, promote employment and minimise regional disparities. The development of our economy in the last thirty years has certainly enhanced our ability to deal with basic social and economic problems. Our economy is now much more broad-based and diversified. However we are conscious that very much more remains to be done.

The international economic situation, particularly in the last few years, has been beset with uncertainty. The continually rising prices of crude petroleum and of imported capital goods, combined with growing protectionism in industrialised countries have considerably aggravated the task of development. The rising costs of raw materials and other inputs have also resulted in difficulties for our public sector industries which have been forced to absorb a substantial part of the increase in cost unlike private sector industries which have been able to pass on the amount to consumers. This trend must now be corrected to enable public sector undertakings to function efficiently. The Central and State Governments should pay serious attention to this sector so that it can effectively perform the leading role assigned to it in our development plans.

In the last three to four years the domestic economy has also displayed many disquieting features. 1979-80 was a year of negative growth, rising prices and social discontent. While the outlook for growth is bright again, we continue to have problems with prices and supplies.

Bigger goods

The removal of poverty and the achievement of self-reliance are basic objectives of our planning. The goals of the Sixth Plan involve a significant increase in agricultural and industrial production as well as a more equitable distribution of the fruits of economic progress among various sections of society. The Plan lays considerable emphasis on measures designed to increase productivity and employment and to improve living conditions of small and marginal farmers, landless labourers, scheduled castes, scheduled tribes and of people living in drought-prone and hill areas. It also includes a number of development programmes catering for their special needs. Effective implementation of these programmes is essential to make a significant dent in poverty and under development.

1981 is the International Year of the Physically Handicapped. We have to take up programmes to these useful members of society. This year also marks the beginning of the 'International Drinking Water Supply and Sanitation Decade 1981—1990.' The goal of this Decade is to provide safe drinking water and adequate sanitation for all by 1990. "I hope the States will give thought to this urgent matter and link it imaginatively to irrigation, health and rural development. Machinery to coordinate the agencies handling these sectors should be devised so as to launch the decade from April, 1981. The Ministry of Works and Housing will keep in touch with you about this.

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*Prime Ministers opening address at the meeting by the National Development Council, on February 13, 1981.

To achieve the targets of the Plan, we must have the active cooperation of all sections of our society in the form of discipline, hard work and a measure of sacrifice, particularly from those who are better placed, whether in rural or urban areas. In the implementation of various schemes and programmes, Panchayati Raj institutions should have an important place and the efforts of Government agencies should be strengthened by the active cooperation of local non-official bodies.

Industry and labour must also contribute. Maximum use must be made of installed capacity, industrial peace must be maintained and significant improvement brought about in labour-management relations and the levels of industrial productivity.

We have seen, in the last few decades, how the benefits of successive plans have got diluted by the growth of our population. If the Sixth Plan is to give tangible benefits to our people it is of the utmost importance for our family planning and welfare programmes to be implemented with drive. Central and State Governments must enthuse voluntary agencies in this important component of the Plan.

Need for Resources

The ambitious, but essential goals of the Plan can be achieved only if adequate resources are raised. Fortunately, State Governments have undertaken a big responsibility to raise resources so as to have higher outlays. Because of this, large outlays particularly on agriculture and rural development have been possible. If these premises to our rural areas are to be fulfilled the States must not falter in raising the promised resources. Any default or deficiency in this will seriously hinder our Plan effort and affect the erring States even more as their outlays will get curtailed. The States must concentrate on the effective implementation of projects and programmes and, above all, on restraint in non-Plan and unproductive expenditures. They must try their utmost to eliminate losses in their public undertakings and to raise resources for productive investment. It is also important for the States not to ignore the economic consequences of the measures they take in certain areas like the fixation of agricultural prices or the writing-off of dues etc. Such decisions should not be taken under pressure of agitations or other events but should be well considered and coordinated with those of other State Governments and the Centre.

Central Ministries will also have to adopt and implement policies that will promote the fulfilment of the Plan, maintain price stability and favour the flow of credit to weaker sections in magnitude and terms.

A certain amount of unevenness in the allocation of resources among competing uses is inherent in the very process of planning, but we should be collectively conscious of the dangers of neglecting any area or section of the country that may remain backward while others go ahead. In a federal set-up there is greater need for understanding on all the mutual problems among States as well as between States and the Centre. The devolution of resources to the States and the pattern of distribution of Central assistance have been subjects of a great deal of discussion over the years. A balance of relationship has been reached by trial and error but there is always scope for improvement in these arrangements. Discussions can continue on these matters but we should not get distracted from our main commitment to our people.

If we do not implement our programmes with speed and efficiency, people will not be impressed by national debates and dialectics on how things should have been done. A plan is as good as its implementation and the National Development Council is the best forum to sort out problems that arise in implementation. I should like to assure State Governments that the Centre will continue to be sympathetic to their aspirations and sensitive to their suggestions.

May I remind you that our Five Year Plan is not just a document, describing national targets and policy framework for their realisation. It is a charter that we periodically give to ourselves to redefine the course of our nation's progress. It crystallises our hopes and aspirations. It symbolise our resolution to dedicate ourselves, all our efforts and energies, to forge ahead. After the recent vacillation, indecision and retreat from progress, today India is once again firmly set on her chosen path of fulfilling her destiny. Let us go forward in a spirit of goodwill and partnership.

I give you all my good wishes for the successful fulfilment of our Sixth Five Year Plan." □

Prime Minister, Smt. Indira Gandhi, is seen addressing the National Development Council. Also seen in the picture, from left to right, Dr. M. S. Swaminathan, Member, Planning Commission, Shri R. Venkataraman, Minister for Finance, Shri N. D. Tiwari, Minister for Planning and Shri Mohd. Fazal, Member, Planning Commission.

Significance of the Sixth Plan

Narayan Datt Tiwari*

WITH the launching of this Plan we would have returned to the era of Planning based on firm targets and resolute endeavour. In the past few years, our Planning effort has tended to suffer because of the difficult economic situation, but also as a result of vacillations and lack of decisiveness with respect to our goals. But all this is behind us, and we should now look forward to a period of planning for development in accordance with our basic objectives of rapid growth with social justice and economic self reliance. We will need for this purpose a sustained effort at resource mobilisation, improvement in the performance of public sector enterprises as also private industry, and efficient implementation of the Plan schemes with active involvement of the people particularly the youth. A national efficiency drive, which the Prime Minister called for at our August meeting, is the need of the hour.

We need rapid growth not in itself but as a means to minimise poverty and eradicate destitution and to attain economic self-reliance. At the same time we cannot postpone the pressing needs of the people for current consumption, for better health cure and education facilities; and for other mimimum essential needs. We have to meet the claims of growth now and in future as also of current minimum needs within the available resource we cannot permit the generation of a process of development which becomes an engine of inflation and inequity. In the Sixth Five Year Plan we have chosen a path which seeks to reconcile these apparently conflicting objectives in the best possible manner.

The main targets of the Plan represent a substantial step-up over what was aimed at in the Fifth Plan or in the now defunct Draft Sixth Plan proposed by the precedessor Planning Commission. We expect the economy to grow at 5.2 per cent a year in the Sixth Five Year Plan, and at a somewhat higher rate of 5.5 per cent in the 10 years thereafter. We have also provided for a redistribution of consumption in favour of the poor, and the calculations made in the Planning Commission show that with proper policies and speedy grass-root implementation it should be possible to bring down the percentage of people below the poverty line from 48 as of now to 30 by the end of the Sixth Plan. The projects in the Plan also show that employment will increase at a rate faster than the growth in the labour force, thus making it possible, over a period of time, to reduce existing levels of unemployment. Special programmes in particular the National Rural Employment programme, have been specifically designed for a direct attack on the problem of unemployment. The Minimum Needs Programme will be given a high priority in the Sixth Plan so that while the growth process is being re-established and put on a firm basis, the essential needs of the people are met at the same time.

Resource Mobilisation

The targets in the Sixth Five Year Plan are by no means over ambitious. For a country of our size and given the magnitude of the problems facing us, anything less than what is suggested in the Sixth Plan would hardly make any difference to the lives of the people; and yet the fulfilment of these targets requires a massive effort at resource mobilisation and the optimum utilisation of the vast infrastructure for development we now possess. Unless this effort is made, the problems of inflation, poverty and unemployment will only get further compounded, making it all the more difficult to achieve the targets of the Plan or even to preserve the planning process itself. Time is now for us to make the requisite effort and I need hardly say that in this, we need the whole-hearted cooperation of all agencies concerned with development, whether at the Centre, in the States or in the districts and villages. Above all, we need the willing cooperation of all sections of the people who must now be enthused to put in the requisite effort.

Nearly 25 per cent of the public sector Plan outlay depends on additional resource mobilisation. Last August we presented a Plan with a total public sector outlay of Rs. 90,000 crores; since then we have revised some estimates of resources in the light of later information, thereby envisaging a somewhat higher level of borrowings from abroad, and raising the target for additional resource mobilisation. All this was necessary to accommodate within the Plan all the priority programmes of the Central and State Governments.

While we can be reasonably certain that the Central Government will leave no stone unturned to realise the target of additional resource mobilisation at the central level, I must take this opportunity of calling the attention of the distinguished Chief Ministers to the responsibility which they have undertaken in the matter of resource mobilisation. A considerable part of the State Plan outlays are rightly on irrigation programmes. The main thrust of these programmes is to complete the ongoing projects with fullest command area development and rapidly develop the ground water resources of the country. Nearly one-third of the utilisable groundwater potential lies in Eastern and North Eastern India; but only one-fourth of this potential has been developed. The proposed Groundwater Corporation will assist in the speedy utilisation of potential in these and other areas. It is also proposed to make a beginning with a National Water Plan.

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*From the address of the Minister of Planning and Labour at the meeting of National Development Council, on February 13, 1981.

The water resources of the country belong to the nation as a whole. It is essential, therefore, that there is full cooperation among the State Governments for their optimum utilisation and a willingness to settle all outstanding Inter-State problems in a spirit of give and take and keeping in view the larger national interests.

The State Plans also put a high priority on power programmes. It is essential that the functioning of the State Electricity Boards is put on a sound footing and the capacity already available is utilised fully. This is also an area in which inter-State cooperation in the larger national interests is vital for the success of our plans.

Transport is a vital element in the economic infrastructure. While all forms of transport must be encouraged, especially those which are energy-saving, the main burden of providing transport facilities will continue to be on the railways. The Plan lays great emphasis on the needed increase in railway capacity and on improvements in the railway performance generally.

Strict Implementation

The Sixth Plan indicates the extent of investment required in the different sectors of the economy. For the public sector, this is provided in the Plan itself. But there is also a responsibility assigned to the private sector. A large part of the private investment will be in agriculture and small industries. For this as well as investment in large and medium industry, it will be necessary to ensure that there is adequate institutional support, including that from banks and financial institutions.

It is not enough for us just to formulate the Plan. It is important to take systematic steps to ensure effective implementation. It is when we come to the implementation of programmes of rural development and of those directly affecting the lives of the common people that our machinery seems to be inadequate. It is of course not difficult to spend just money on Plan schemes. What is most difficult is to make these schemes cost-effective and to realise our money's worth.

It is our strong belief in the Planning Commission that effective implementation of the Plan requires the total involvement of the people, particularly those who are to benefit from the Plan. We have stressed the importance of the household as a unit of development. This means preparation of schemes of development appropriate to the needs of the target group households in different regions of the country in accordance with the local situation and local potential. It is also essential that the households themselves participate fully in the preparation of such schemes. You will all agree that without concerted efforts in the area of population stabilisation, all our efforts in improving the quality of life will prove futile. Voluntary agencies as well as research and academic institutions must be given a full place in the process of development. We must, as we adopt the Sixth Plan at this historic meeting, dedicate ourselves to the hard work that lies ahead of us in moving rapidly to eradicate poverty and unemployment, to establish an egalitarian society and to ensure for all our countrymen a secure and stable environment in which they can live their lives with dignity and with opportunity for realising their individual and collective potential. We will need more than one Plan to make this dream a reality. Let there be a national consensus behind this Plan so that all sections of the society can move in unison with a sincerity of purpose to attain the goal of socialism and to make our nation prosperous and self-reliant. □

Sixth Plan Targets for Principal Commodities & Service

Commodity	Unit	1979-80	1984-85
1. Foodgrains	Mill. tonnes	109	149-154
2. Sugarcane	Mill. tonnes	128	200-215
3. Jute & Mesta	Lakh bales (180 Kgs. each)	80.3	91
4. Cotton	Lakh bales (170 Kgs. each)	77	92
5. Oilseeds (5 major)	Lakh tonnes	81	110
6. Coal	Mill. tonnes	103.96	165
7. Lignite	Mill. tonnes	3.12	8
8. Iron ore-Lumps & Fines	Mill. tonnes	39	55
9. Iron Ore-Concentrates	Mill. tonnes	.	5
10. Cloth	Mill. metres	10435	13030
11. Paper & Paper Board	Thou. tonnes	1050	1500
12. L.D. Polyethylene	Thou. tonnes	71.3	100
13. H.D. Polyethylene	Thou. tonnes	25.4	27
14. Polyprophylene	Thou. tonnes	13.4	27
15. PVC	Thou. tonnes	49.9	128
16. Nitrogenous Fertilizers (N)	Thou. tonnes	2226	4200
17. Phosphatic Fertilizers (P_2O_5)	Thou. tonnes	757	1400
18. Cement	Mill. tonnes	17.68	33.34
19. Saleable Steel (Plain Carbon)	Mill. tonnes	7.38	11.51
20. Aluminium	Thou. tonnes	192	300
21. Copper-Refined	Thou. tonnes	18.8	45
22. Zinc	Thou. tonnes	52.65	85
23. Lead	Thou. tonnes	11.4	25
24. Electricity Generation	Bill. Kwh.	112	191
25. Originating Traffic in Railways	Mill. tonnes	217.8	309

Sixth Plan in a Nutshell

THE SIXTH FIVE YEAR PLAN 1980—85, approved by the National Development Council envisages a total investment (gross capital formation) of Rs. 158710 crores at 1979-80 prices. This is to be financed by domestic savings of Rs. 149647 crores, or nearly 94.3 per cent of the total investment and net transfer of resources from abroad to the extent of Rs. 9063 crores.

The total investment has been projected to grow from Rs. 23618 crores in 1979-80 to Rs. 36797 crores by the end of the Plan period. At the same time, the Gross Domestic Product at market prices has been projected to increase from Rs. 108546 crores to Rs. 146540 crores. Domestic savings has been projected to grow from Rs. 23655 crores to Rs. 35870 crores during the Plan period. Thus investment will rise from 21.8 per cent of GDP in 1979-80 to 25.1 per cent in 1984-85 ; and domestic savings from 21.2 per cent of GDP to 24.5 per cent.

Of the total Plan investment of Rs. 158710 crores, Rs. 84000 crores or 53 per cent will be in the public sector and Rs. 74710 crores or 47 per cent in the private sector. In addition, there will be current outlays of Rs. 13500 crores in the public sector. Thus the total public sector plan outlay will be Rs. 97500 crores.

In comparison with the Fifth Five Year Plan 1974—79, the outlay for the Sixth Plan in the public sector represents an increase of 148 per cent in nominal terms and nearly by 80 per cent in real terms.

The Plan aims at a growth rate of 5.2 per cent per annum in Gross Domestic Product and of 3.3 per cent per annum in per capita income. Thus by the end of the Plan, per capita SDP is expected to reach Rs. 1744 (at 1979-80 prices) as compared to Rs. 1484 in the base year.

Sectoral Allocations

An all-round bid is to be made to achieve self-reliance by ensuring speedy development of the economy, reduction in the dependence on foreign aid, diversification of domestic production and a consequential reduction in imports for certain critical commodities and the promotion of exports. With a view to ensuring speedy development, emphasis has been laid on the core and critical sectors of the economy. A substantial outlay in the public sector Plan has been provided for the development of the energy sector. In the agriculture sector, an outlay of Rs. 5695 crores has been provided, the outlay for the rural development is Rs. 5364 crores ; Special Area Programme Rs. 1480 crores ; Irrigation and Flood Control Rs. 12160 crores ; Energy Rs. 26535 crores ; Industry and Minerals Rs. 15018 crores ; Transport Rs. 12412 crores.

Resources of the Public Sector Plan 1980-85

(Rs. crores at 1979-80 prices)

	Centre	States	Total
1. Balance from current revenues at 1979-80 rates of taxes	1178	13300	14478
2. Contribution of public enterprises	9911	(—)516	9395
3. Market borrowings (excluding market borrowings of financial instituions)	15000	4500	19500
4. Small Savings	2112	4351	6463
5. Provident Funds	1660	2042	3702
6. Term loans from financial institutions	..	2722	2722
7. Misc. Capital Receipts (net)	6170	(—)2161	4009
8. Inflow of Foreign Resources	9929	..	9929
(i) Net aid	5889	..	5889
(ii) Other inflows	4040	..	4040
9. Drawing of own foreign exchange reserves	1000	..	1000
10. Additional Resource Mobilisation	12290	9012	21302
11. Uncovered gap/deficit financing	5000	..	5000
12. Total Resources	**64250**	**33250**	**97500**
13. Central Assistance for State Plans	(—)15350	(—)15350	..
14. Resources avialable for Plan (12—13)	**48900**	**48600**	**97500**

+Inclusive of Union Territories

The development strategy visualises accelerated progress towards removal of poverty, generation of gainful employment, technological and economic self-reliance, and strengthening the agricultural and industrial base. Also, consistent with the overall social and economic objectives, sustained efforts will be made to have sharper redistribution, raising the share of

section in national income, consumption an

utilisation of public services. Thus, specific ac

grammes like the National Rural Emplo

gramme and other anti-poverty schemes

Public Sector Outlays—Sectorwise

(Rs. crores)

		Centre	States	U.Ts.	Total
I.	Agriculture	2450.13	3119.02	125.92	5695.07
II.	Rural Development	2314.87	3020.03	28.83	5363.73
III.	Special Area Programmes	..	1480.00	..	1480.00
IV.	Irrigation and Flood Control	635.00	11395.48	129.55	12160.03
V.	Energy	11995.00	15293.56	246.88	26535.44
	Power	4725.00	14293.56	246.88	19265.44
	New and Renewable sources of Energy	100.00	..	..	100.00
	Petroleum	4300.00	..		4300.00
	Coal	2870.00	..	..	2870.00
VI.	Industry & Minerals	12771.47	2185.86	60.24	15017.57
	Village & Small Scale	923.40	315.11	41.94	1780.45
	Large and Medium	11848.07	1370.75	18.30	13237.12
VII.	Transport	8418.64	3707.34	285.99	12411.97
	Railways	5100.00	..	..	5100.00
	Roads	830.00	2398.87	210.09	3438.96
	Road Transport	70.00	1111.40	14.15	1195.55
	Other Transport	2418.64	197.07	61.75	2677.46
VIII.	Communications and Information and Broadcasting	3101.98	28.61	3.67	3134.26
IX.	Science and Technology	848.15	17.05	..	865.20
X.	Social Services	4453.42	8830.88	750.96	14035.26
	Education	734.75	1624.07	164.92	2523.74
	Health & Family Welfare	1611.00	1091.19	128.86	2831.05
	Housing & Urban Development	410.00	1846.72	231.68	2488.40
	Water Supply & Sanitation	614.22	3123.65	184.15	3922.02
	Welfare of Scheduled Castes, Scheduled Tribes and other Backward Classes	240.00	709.00	11.30	960.30
	Special Central Additive for Scheduled Caste Component Plans	600.00	..	..	600.00
	Social Welfare	150.00	109.78	12.19	271.97
	Nutrition	14.95	214.55	8.64	238.14
	Labour & Labour Welfare	78.30	111.92	9.22	199.64
XI.	Others	261.34	522.17	17.96	801.47
	Grand Total	47250.00	48600.00	1650.00	97500.00

selected target groups will form an essential component of the Sixth Plan strategy.

The precentage of people below the poverty line is postulated to decline from 48.44 at the beginning of the Plan to 30 by the end of the Plan. The Plan programmes are expected to increase employment from 151 million standard person years to 185 million standard person years. The monthly per capita consumption of foodgrains will increase from 12.95 Kg. to 14.32 Kg. The monthly per capita consumption of sugar will increase from 0.68 Kg. to 0.79 Kg., and the monthly per capita consumption of clothing will increase from 0.85 metres to 0.92 metres. The life expectancy is expected to increase from 52.6 to 55.1 for males and 51.6 to 54.3 for females by the end of the Plan.

The Plan gives high priority to the Minimum Needs Programme. A total provision of Rs. 5808 crores has been made for the MNP as against Rs. 2607 crores for the Fifth Plan. Provision of free or subsidised services through public agencies is expected to improve the consumption levels of those living below the poverty line and thereby improve the productive efficiency of the poor, especially in the rural areas. With targets rigidly fixed, the MNP Programme coupled with other programmes of rural development, is expected to enhance opportunities for employment and to improve the life of the rural poor. A high level machinery for monitoring the implementation of the programme at Central and State levels is to be set-up.

Alleviation of rural poverty will be the prime objective of the Sixth Plan. Since the hard core of poverty is to be found in the rural areas, the increase in productivity potential of the rural economy is an essential condition for finding an effective solution to the problem of rural poverty. The poorest sections belong to the families of landless labourers, the small marginal farmers, rural artisans, scheduled castes, scheduled tribes and socially and economically backward classes. ☐

More details of the Sixth Five Year Plan will be published in the subsequent issues of 'YOJANA' (Editor)

Plan Targets in Human Terms

Some targets of the Sixth Five Year Plan, in human terms, are given below :

- Fifteen million families in rural areas will be given special assistance under the Integrated Rural Development Programme thereby enabling 75 million persons to rise above the poverty line.
- Over 6 million persons in urban areas will be enabled to rise above the poverty line.
- Special Central assistance of Rs. 600 crores will be provided to supplement the efforts of the State Governments for raising the economic levels of Scheduled Castes.
- Special Central assistance of Rs. 470 crores is being provided for the tribal sub-plans in addition to funds allocated for the purpose in the State Plans.
- Under the National Rural Employment Programme 300 to 400 million man-days of employment will be created every year and 30 million families will be benefited under this scheme.
- Additional employment will be found for over 34 million persons during the Plan period.
- Over 6.8 million additional landless labour households will be provided with house-sites and 3.6 million families will be provided with assistance for house construction.
- A total of about 46,000 villages will be electrified.
- Safe drinking water will be provided to all the 1.9 lakh remaining problem villages at a cost of Rs. 2007 crores.
- Ten million additional urban slum dwellers will be given assistance to improve their environment.
- Twenty thousand villages will be linked to all-weather roads at a cost of Rs. 1165 crores. ☐

SIXTH PLAN OUTLAYS OF STATES & UNION TERRITORIES

(Rs. crores)

States/Union Territories	Outlay 1980-85
Andhra Pradesh	3100
Assam	1115
Bihar	3225
Gujarat	3680
Haryana	1800
Himachal Pradesh	560
Jammu & Kashmir	900
Karnataka	2265
Kerala	1550
Madhya Pradesh	3800
Maharashtra	6175
Manipur	240
Meghalaya	235
Nagaland	210
Orissa	1500
Punjab	1957
Rajasthan	2025
Sikkim	122
Tamil Nadu	3150
Tripura	245
Uttar Pradesh	5850
West Bengal	3500
Special Area Programmes	
Hill Areas	560
Tribal Areas	470
N.E.C.	340
Other Unclassified	26
Total : (States)	**48600**
Union Territories	
A & N Islands	96.60
Arunachal Pradesh	212.00
Chandigarh	100.75
Dadra and Nagar Haveli	23.09
Delhi	800.00
Goa, Daman & Diu	192.00
Lakshadweep	20.35
Mizoram	130.00
Pondicherry	71.55
Other Unclassified	3.66
Total : (U.Ts.)	**1650.0**
Grand Total : (States and UTs)	**50250.00**

Ways to Conserve Energy

CONVENTIONAL sources of energy will still be dominant in all major energy consuming sectors during the next two decades, predicted Dr. A. K. Malhotra, Member (Offshore), Oil and Natural Gas Commission (ONGC). But, he warned, the interregnum will have to be used to shift the economy from its reliance on oil towards greater use of hydel power, coal and alternative energy sources. Dr. Malhotra was delivering the third G. N. Jagasia Memorial Lecture, on "the Search for Energy" at the Indian Institute of Technology (IIT), Powai in Bombay recently. The biennial lecture series is under endowment by Larsen and Toubro Limited (L & T) in memory of Shri Jagasia who was Deputy General Manager in L & T at the time of his death in harness in 1971.

Dr. Malhotra estimated that by 1990 the world energy supplies will amount to 130 million barrels of oil equivalent per day, of which 45 per cent will be provided by oil, 18 per cent by gas. 20 per cent by coal, 7 per cent by nuclear plants and 8 per cent by hydel and other sources. Dr. Malhotra predicted that coal will be "one of the swing fuels during the next twenty years," providing 30 to 35 per cent of the world energy demand in the year 2000, increasing the world trade in coal from three to five times to a maximum of 13 million barrels of oil equivalent per day.

Dr. Malhotra, cautioned that meanwhile the R & D thrust should be directed at making existing technologies more efficient in their consumption of energy, conserving the latter by obtaining a greater output for the same amount of energy previously expended. He mentioned several improvements being made in this direction, for example, cogeneration, that is, utilisation a factory's own heat output—mostly steam—as a source of power, increase of mileage in cars, better insulation to conserve heat, use of videophones to cut down travel, micro-processors, and fuel cells.

Improvements in the thermal efficiency of refineries could save 50 per cent of the crude used in the thermal process of refining. Cogeneration could save 20 per cent of industrial energy. Insulation could save 40 per cent of energy used in domestic heating in cold countries, which accounts for about 30 per cent of their energy consumption. ☐

Highlights of Railway Budget 1981-82

SURCHARGE ON FARE, FREIGHT, ETC. TO YIELD RS. 356.26 CRORES

NO INCREASE ON MONTHLY SEASON TICKETS

JOURNEYS UPTO 150 KMS. (2ND CLASS ORDINARY) EXEMPTED FROM SURCHARGE

NO FREIGHT SURCHARGE ON SALT, FIREWOOD AND CHARCOAL

ADVANCE RESERVATION PERIOD REDUCED TO ONE MONTH

ORIGINATING REVENUE EARNING GOODS TARGET— 215 MILLION TONNES

PASSENGER GROWTH—3 PER CENT NON-SUBURBAN AND 6 PER CENT SUBURBAN

SIXTH PLAN—REHABILITATION PLAN—RS 5,100 CRORES

HIGH-POWER COMMITTEE OF EXPERTS ON RAILWAY WORKING

SEPARATE RAILWAY DIRECTORATE FOR TOURISM

DEVELOPMENT COOPERATIVE SOCIETIES TO BOOST HOUSING FOR RAILWAY STAFF

The Railway Minister Shri Kedar Pandey recently presented Rs. 11.42 crores surplus Railway Budget for the year 1981-82. The Budget provides for generation of additional resources to the extent of Rs. 356.26 crores through an upward revision of the fare and freight structure and rates of luggage and parcel traffic—Rs. 70.04 crores from passenger traffic Rs. 276.08 crores from goods traffic and Rs. 10.14 crores from luggage and parcels.

The Minister has not proposed any increase in the existing rates of monthly season tickets for suburban traffic. The increase through a surcharge in the ACC 1st Class is 15 per cent, First Class 12.5 per cent and Airconditioned Chair Car and Second Class (both Mail/Express and Ordinary) 10 per cent. However, journeys up to 150 kms in the second class ordinary will be exempted from the surcharge. For Air-conditioed 2-Tier Sleeper class the basic fare will be the same as for First Class Mail/Express, but considering the quality of service and comfort available in this class, there will now be a supplementary charge per ticket at the rate of Rs. 15 for journeys upto 1000 kms. and Rs. 25 for longer journeys. The levy of surcharge on the passenger traffic will yield an additional earnings of Rs. 70.04 crores.

On all freight traffic, except on commodities like salt for domestic use, firewood and charcoal surcharge of 15 per cent has been levied. A flat 10 per cent surcharge has also been proposed over the existing rates for all luggage and parcel traffic. The additional earnings from the surcharge on freight traffic would amount to Rs. 276.08 crores and from luggage and parcels to Rs. 10.14 crores.

The Plan outlay for the Railways under Sixth Five Year Plan for 1980-85 has been fixed at Rs. 5,100 crores. Replacement of over 50,000 wagons, in terms of 4-wheelers, 5,000 coaches and 300 Electric Multiple Units and renewal of 14,000 kms. track will be achieved during this Plan period.

The Railway Minister announced the enhancement of Plan outlay for 1981-82 to Rs. 980 crores as against Rs. 762 crores in 1980-81. Priority will be given to replacement and renewal of assets.

A target of 215 million tonnes of originating revenue-earning traffic has been fixed for 1981-82. The Budget Estimates for the year also assume a growth of three per cent in non-suburban passenger traffic and six per cent in suburban passenger traffic.

The total expenditure, including appropriation to the Funds, is estimated at Rs. 2,876.95 crores against Gross Traffic Receipts of Rs. 2,920.49 crores. The net revenue will thus be only Rs. 43.54 crores which will not be sufficient to discharge the anticipation Dividend Liability of Rs. 349.91 crores The overall budgetary gap will, therfore, be Rs. 306.37 crores, besides Rs. 38.47 crores required for meeting expenditure chargeable to the Development Fund. However, with levy of the proposed surcharge a total of Rs. 356.26 crores of additional earinings has been estimated. The dividend liability of Rs. 349.91 crores will thus be fully met. Further, after appropriating Rs. 38.47 crores to meet the expenditure chargeable to Development Fund, there will be a net surplus of Rs. 11.42 crores, which will be utilised for partial liquidation of the Deferred Dividend Liability.

As a result of various administrative and innovative steps taken three months ago the Railway operation is now back on the rails and against the monthly average loading of 15.03 million tonnes during the first seven months of the year, there has been a progressive stepping up of loading to 16.90 million tonnes in Novembed 1980. 17.82 million tonnes in December 1980 and 19 million tonnes in January 1981.

During the current year 126 kms. of new lines viz. Rohtak-Bhiwani, Shamli-Saharanpur and Jakhapura-Sukhinda have so far been opened. The existing schedule envisages opening of 171 kms. of new lines in 1981-82. Provision has been made in the 1981-82 Budget for the construction of a new line between Telapur-Patancheru too. In 1980-81, electrification works on 437 kms were completed. The high density sections totalling 1,418 kms are being taken up for electrification in 1981-82. The Minister announced the setting up of a high powered Committee of Experts to examine and report on future challenges and allied important aspects of railway working.

A separate Directorate of Tourism in the Ministry of Railways will be organised to deal with all matters connected with foreign and internal tourism and work, in liaison with similar organisations.

It has been decided to reduce the period of advance reservation from the existing six months to one calendar month.

Our next issue will carry a review on Railway Budget by a well known economic journalist.

Railway Budget at a Glance

(Rupees in Crores)

	Actuals 1979-80	Budget Estimates 1980-81	Revised Estimates 1980-81	Budget estimates 1981-82
(a) Gross Traffic Receipts	2,337.84	2,749.59	2 707.22	3,276.75
(b) Ordinary Working Expenses	1,878.38	2,111.93	2,164.61	2,464.64
(c) Appropriation to Depreciation Reserve Fund	200.00	220.00	220.00	350.00
(d) Appropriation to Pension Fund	64.00	84.00	84 00	98.50
(e) Total Working Expenses (b)+(c)+(d)	2,142.38	2,415.93	2,468 61	2,913.14
(f) Net Traffic Receipts (a)—(b)	195.46	333.66	238.61	363.61
(g) Net Miscellaneous Receipts	31.83	31.29	33.48	36.19
(h) Net Railway Revenue (f)—(g)	227.29	364.95	272 09	399.80
(i) Dividend to General Revenues	**293.53	322.24	**324.43	349.91
(j) Surplus (+) or shortfall (-) (h)-(i)	—66.24	+42 71	—52.34	+49 89
(k) Operating Ratio*(e)÷(a)	91.5%	87 8%	91.1%	88 8%
(l) Percentage of average net revenue before payment of Dividend to General Revenue on the Capital-at-Charge	4.1%	6.2%	4.6%	6.3%

Note: *Ratio of total Working Expenses to Total Earning Excluding Suspense.

*Dividend payment is limited to the available net revenue, and balance representing shortafall is transferred to 'Deferred Dividend Liability Account" as per recommendations of Railway Convention Committee (1977)

Economics of Non-alignment

"EXPERIENCE has shown that political subjugation and economic exploitation go hand in hand. So, through political freedom, we hoped to achieve economic advance. The economic dimention of the policy of non-alignment is no less important than the political. In Algier, Colombo and Havana, the conferences articulated the economic content of non-alignment.

Yet, for most of us economic prospects have been worsening with each passing month. I strongly urge that global negotiations be undertaken without further delay to pave the way for a new international economic order.

At the same time, we have our own responsibility, highlighted by the impasse in North-South negotiations to reduce our vulnerability to the actions of developed countries. The Havana summit urged collective self-reliance. The main sanction of developing countries is in our solidarity. This solidarity must be built by a process of reconciliation and harmonisation of our mutual interests.

If protectionism—the classic weapon of the strong against the weak—is used against us, should we not expand trade amongst ourselves? If advanced technology and aid (and even food) are used as instruments of pressure, should be not devise and adopt comprehensive measures for mutually beneficial financial, technological and agricultural cooperation among our countries? Today our capabilities are diverse enough to permit meaningful transfer of technology, skill and financial resources among ourselves.

. Some affluent countries do recognise the inter-dependence of nations and the need for cooperation. Hence our negotiating postions should be formulated in a dynamic context and our energies concentrated on mapping out our own strategy."

Prime Minister Indira Gandhi, at the Non-aligned Foreign Ministers' Conference—New Delhi, February 9, 1981.

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Modernisation of Indian Railways

Role of Research in Development Efforts

C. K. Jaffer Sharief*

ECONOMIC PROGRESS of any country is dependent, to a large extent, on the development of transport infrastructure. In India, Railways provide the main transport network in the country's socio-economic progress. It calls for development and expansion of all facets of the infrastructure of the railways such as traction, rolling stock, line capacity, marshalling yards, workshops, track and bridges and signalling and telecommunications.

Railway research naturally, has an important role to play in this developmental effort. The activities of the Research, Design and Standards Organisation (RDSO) at Lucknow are directed towards improving the utilisation of existing assets, modernising railway operations and attaining self-sufficiency in the design and manufacture of railway equipment.

Towards High Speed

For over a century, the Indian Railways were operating within 100 km/h maximum speed limit on Broad Gauge and 75 km/h on Metre Gauge. Unlike in advanced countries where high speeds were achieved with heavy capital investments, the Indian Railways have effected increase in speed on major inter-city routes by marginal inputs to the existing assets. This was possible due to sustained studies and efforts undertaken by RDSO. By making alterations to suspension and brakes of existing coaches and to track structure with the adoption of long welded rails, elastic fastenings, speed potential was increased. It was possible to intorduce Rajdhani Express between New Delhi and Bombay and New Delhi and Howrah at maximum operating speeds of 120 kmp/h and 130 kmp/h respectively with WDM4 locomtive. Certain other superfast trains have been introduced by speeding up from prevailing 100 kmph to 110 kmph. Similarly, studies conducted on the metre gauge system by the RDSO enabled the Indian Railways to break the age-old speed barrier of 75 kmp/h and introduce two superfast trains i.e. Pink City Express between Delhi and Jaipur and Vaigai Express between Madras Egmore and Madurai, operating at maximum speed of 100 kmp/h.

Development in Traction

For a long time nearly 100 years since the first railway was laid, steam engines were the main mode of traction. In 1950's diesel engines and later electric engines were introduced on Indian Railways.

With the diesel engines, it was possible to increase the haulage capacity of trains from 10 to 18/20 coaches leading to more accommodation and reducing running time. Trains with longer loads and more tonnage could be run and through put on various sections have increased. Due to these modern developments, density of freight traffic during 1978-79 was about three times that of 1950-51 on the BG and more than three times on M.G. The RDSO provided comprehensive guidance to the zonal Railways in respect of depot facilities, standardised maintenance practices and personnel training for diesel traction. Many new designs for diesel locomotives have also been evolved and standardised.

Electric traction was first started on the Indian Railways in 1925 when 7500 V. D.C. traction was introduced near Bombay. French technical consultants rendered assistance in the design and manufacture of electric locomotives in the initial stages. But with a major effort, breakthrough was achieved in 1967 when three new designs/systems of electric locomotives were introduced.

Out of total fleet of 950 electric locomotives, nearly 400 are built to indigenously standardised designs. A new design of high speed express locomotive with an initial design speed potential of 130 km/h with the provision of further improvement of 160 km/h with the use of high speed bogie has been conceived and designed by RDSO.

Passenger Coaches

As a result of efforts put in by the RDSO and improvements effected in the passenger amenities, a second class railway coach today presents a much more attractive appearance than what it was 30 years ago. The seats in today's coaches are much wider with more leg room, the interior walls and panels have more attractive appearance and even the floors have been so designed that keeping them clean is not difficult. In the two tier and three tier sleeper coaches, sleeping berths have been cushioned to almost the same level of comfort as in the first class.

For providing additional accommodation, RDSO have designed a broad gauge double-decker coach different from the conventional coaching vehicle in appearance and design. RDSO have also taken up urgent task of modifying designs of suburban passenger trains to provide much needed relief to 30 lakh commuters per day in suburban areas.

RDSO has also ventured upon making the facility of air-conditioning within the reach of a larger section of our society. From the chair car and sleeper coaches of a few delux and Rajdhani trains, they have been successful in introducing self-generating AC sleeper coaches which accommodate 48 passengers as against 14 to 18 in upper class A C coach and can be attached to any train.

Special-Purpose Wagons

After independence, the country had little resources to match the increased transport requirements. The wagon fleet in hand was woefully inadequate and lacking in design. Design-cum-testing facilities were set up in RDSO and a complete change was brought about in the design and quality of goods stock. Standardisation of new types of wagons has enabled the railways to step up trailing tonnages of goods train from around 1600-1800 to about 3600 without major investment on infrastructure and fixed installation. More recent designs will permit increase in trailing loads to 4500 tonnes.

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* Minister of State for Railways.

A variety of basic designs were developed and the new type of wagons used for the fertilizer plants, well wagons for transport of heavy transformers and turbo generator stators, special wagons known as the STUB-End type designed for Fertilizer Corporation of India are some of the remarkable achievement in the development of special purpose design wagons.

Signalling & Telecommunication

Technical know-how has been developed for preparation of design of sophisticated signalling installations like route-relay interlocking systems, route progression system's panel interlocking systems, automatic block installations, tokenless block systems, etc.

With a view to make the rail travel faster and safer, a number of safety signalling equipment such as automatic warning system, vigilance control device, high frequency short jointless track circuits, signalling relays, were developed and standardised.

Civil Engineering Technology

Technology in regard to track design, construction and maintenance has made considerable progress during the last two decades. Rail joints are being eliminated by laying LWR & CWR. Concercte sleepers with elastic fastening and improved design of turnouts are also being used. For increasing the speed as well as for carrying a very high traffic, manual maintenance is not adequate and it has become necessary to introduce mechanical maintenance in some sections.

The RDSO is not only functioning as consultants to the railways for electrification projects but have made Indian Railways technologically self-sufficient in bridge technology and all construction works are carried out to the designs evolved by RDSO which has formulated its own code of practices for the design of steel bridge girders, reinforced concrete and prestressed concrete girders, arch bridges and substructures. With a view to conserving steel, RDSO is currently engaged in development of designs of welded bridge girders and continuous girders as also investigating the residual fatigue life of about 3000 bridge spans of early steel and wrought iron so as to fix priorities for their replacement and at the same time ensuring that maximum utlity out of these assets is achieved.

Infrastructure for R&D

All these developments would not have been possible without a strong infrastructure for R&D. Indian Railways have in RDSO the necessary facilities consisting of well-equipped laboratories and design offices. Nearly 300 engineers and technologists and 2,500 staff are engaged in these activities.

Consultancy Abroad

Research activities on Indian Railway have attracted world-wide attention and increasing number of requests for consultancy were received and complied with from several developing countries which include the Philippines, Thailand, New Zealand, Iran, Iraq, Jordan, Syria, Saudi Arabia, Egypt, Zambia, South Korea, Sri Lanka and Bangladesh.

New grounds have been established in achieving all out expansion of Indian Railways. Through the concerted efforts of RDSO towards research, design and standardisation, a lot has been done since Indpendence for the modernisation of Indian Railways, and near-self-sufficiency in almost all the items of railway equipment coupled with entry into the export market has been achieved. Still much remains to be achieved to bring them at par with the more advanced Western world, and the Indian Railways are fully geared to achieve their goal through continuous efforts of RDSO. □

Material From Industrial Waste

Mary Stewart Krosney

ISRAELI soil physicists have developed a conditioning material which, when sprayed on soil, protects it against wind erosion, prevents crust formation and improves conditions for seed germination. it is made mainly from industrial wastes, 40 per cent of its makeup coming from paper industry effluent. The conditioner, developed by Prof. Dan Zaslavsky at the Technion, Israel's Institute of Technology, also reduces soil erosion during rainy periods and can prevent build ups of dust in public areas and unpaved roads. The conditioners are both reasonable in price and may be used in smaller quantities. After extensive testing in Israel's Negev Desert, scientists gave green signal for commercial production of four of the conditioners viz., "Lima", "Lia" "Copolima" and "Copoliba".

Lima and Lia, when mixed with water, produce a transparent brown solution which will not separate and can therefore be sprayed together with ordinary agricultural spraying or drip irrigation equipment without fear of clogging the nozzles. Copolima and Copoliba are stable emulsions and can also be sprayed without clogging.

The best results for treating arid soil with Lima are achieved by first preparing the seed bed mechanically, then planting, and finally spraying the soil with the solution. Moreover, a single application of Lima spray can drastically reduce dust damage and wind erosion of sandy soil.

Copolima gives sand more permanent protection, which will not wash away. Copoliba is by far the most stable against washing away and against abrasion efforts of blowing sand grains; its special strength is in the protection of sandy surfaces against wind erosion.

(News from Israel)

Service of the Disabled

Role of Central Social Welfare Board

Smt. Sushila Rohatgi*

It was the humble privilege of the Central Social Welfare Board to lay the foundation for a wide gamut of schemes for the welfare of the most neglected sections of humanity—namely, the blind, the deaf, the dumb, the crippled and the mentally retarded in the early 50s, when there was, perhaps, no department at the central or state levels to look after this secction of the community. The Central Social Welfare Board owes its origin to the vision of Pandit Jawahar Lal Nehru, the indefatigable zeal of Smt. Durgabai Deshmukh, its first Chariman, and the close association of our Prime Minister, Smt. Indira Gandhi and a host of eminent and dedicated social workers. During the three decades, the Central Social Welfare Board has built up a network of services for the handicapped by giving assistance to various voluntary organisations engaged in their welfare. The Central Social Welfare Board, the State Social Welfare Advisory Boards and a plethora of voluntary organisations functioning at the national, state and district levels, have created awareness in the community about the problems of the handicapped persons. Now, in this International Year of the Disabled Persons, the Central Social Welfare Board can take legitimate pride in having done some spadework in stirring society to action and in bringing about an attitudinal change towards the handicapped.

The problems facing us are indeed gigantic when we learn that nearly 10 per cent of our population consists of the handicapped, if we accept the U. N. theory. A happy augury is that our decennial census coincides with the IYDP with the result that we shall be able very soon to map out our strategy for the handicapped, fully equipped with the data that would soon be available. All along, the biggest handicap that the planners, administrators, social workers and social scientists had been facing was the dearth of accurate data in regard to the magnitude of the problem. It is not adeuate to start some institutions here and there,or helping some stray individuals when we come across them. The problem must be seen in a perspective which necessitates the formulation of a solid, comprehensive plan of action which aims at prevention, cure and rehabilitation of the disabled. Immediate steps are required to educate the public about the problems and potential of the handicapped by mounting a massive publicity campaign. All forms of mass media should be fully used for this purpose. Disability can be prevented in many cases—largely if we strengthen our health services and narrow the awareness gap among the people specially in the backward, remote and rural areas.

Providing Employment

Under its socio-economic programme, the Board has since its inception in 1953, given assistance to a number of voluntary agencies to run socio-economic units for the handicapped. These units manufacture a variety of items like readymade garments, gloves, stationery, or are engaged in pappad making, carpentary, printing, soap making, screwpine industry, dairy farming etc. Since 1965, hundreds of handicapped people have benefited by this programme. In several socio-economic units, alongwith other beneficiaries, a few handicapped are also employed.

It is the duty of every enlightened citizen and voluntary agency to see that no handicapped person suffers in future, for want of an opportunity to work in a dignified manner. Every voluntary worker and voluntary agency should work shoulder to shoulder with the Government in a concerted action to remove age-old prejudices against the handicapped.

At the moment there are more than 3000 socio-economic units functioning under the Central Social Welfare Board in different parts of the country which would provide a great scope for the employment of the handicapped. During the International Year of the Disabled Persons, the Central Social Welfare Board plans to ask its units in various States to encourage and identify voluntary institutions to take up socio-economic units with a view to employing the maximum number of the handicapped. There is also a great scope for employing the handicapped in the Socio-economic units already functioning. The Board is also planning to explore the possibility of providing them self-employment oportunities under socio-economic programme. It will shortly set up vocational training programmes for the mentally retarded children after obtaining the Government's permission for relaxation of rules in regard to the concerned programme under which the Board would start the scheme. It will seek to train, through the help of voluntary agencies, the handicapped children in different vocations according to their aptitude regardless of the age.

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* Chairman, Central Social Welfare Board.

Social Integration

In order to promote social integration of the handicapped, the Board proposes to plan holiday-home-camps.

The plight of long-neglected leprosy-affected community is easily visible. Even after treatment and cure they are not accepted by the family or community. Keeping their sorry predicament in mind, the Board is planning to start shelter workshops for the patients cured of leprosy.

The Central Social Welafre Board has already fulfilled the three per cent quota in regard to the recruitment of disabled on its staff. It is also asking the State Boards to follow this pattern as far as possible.

In pursuance of the recommendations, made by a Conference of the Chairmen of the State Social Welfare Advisory Boards, held in September 1980, the Board plans to subsidise aids for the disabled which would promote their mobility and functional capacity. The modus operandi of the channelisation of the aids is being worked out.

In keeping with our heritage and culture, many national and state level voluntary organisations are doing a creditable service towards the education, vocational training and economic rehabilitation of the disabled. Mention may be made here of the Fellowship for the Handicapped, Bombay, the National Association for the Blind, Bombay, the All India Federation of the Deaf, the National Federation of the Mentally Retarded, Rotary-sponsored Rehabilitation Centre for the Crippled, Allahabad, and several other organisations working in different parts of the country. We are grateful to thousands of dedicated voluntary workers working behind the scene away from the glare of publicity. They are heralding a new social change towards the handicapped by providing solace and help to the needy.

In the Year of the Disabled, we must make a thorough reappraisal of our policies and attitude towards the handicapped; above all to look at them as people with some physical ilmitations, who crave for human love and recognition and who are, in no way, inferior to us. In fact, in many cases they outshine us. Their legitimate rights denied through the centuries must be restored. They do not ask for charity but an opportunity to work alongwith us in a spirit of brotherhood and equality. It is the duty of every enlightened citizen and voluntary agency to see that no handicapped person suffers in future, for want of an opportunity to work in a dignified manner. Every voluntary worker and voluntary agency should work shoulder to shoulder with the Government in a concerted action to remove age-old prejudices against the handicapped.

Severe malnutrition in a child leads to mental retardation

In the near future, the Central Social Welfare Board would redouble its efforts to arouse social conciousness and awareness so that the maximum number of disabled are brought into the mainstream of India's social, cultural and economic activities.

The soul-stirring speech and clarion call given by our Prime Minister Indira Gandhi on the inauguration of the Year of the Disabled, must be accepted as a challenge, to harness all the goodwill, resources and voluntary zeal to bring hope, happiness and opportunity to this neglected sector. ☐

Steel Plants Help Small Industries

THE public sector steel plants have taken a number of steps to promote the growth of small scale and ancillary industries around their plants. These include setting up of small scale industry advisory committees to encourage and render necessary assistance regarding technical know-how, testing facilities and supply of essential raw materials. Besides, senior officers have been assigned in the steel plants on full-time basis to look after the development of small scale industries.

As a result of these measures, the number of small scale and ancillary units as also their employment potentialities have gone up significantly in the last few years. Presently, the number of these units is 652. The total value of orders placed by Bokaro, Rourkela, IISCO, Durgapur and Bhilai placed with small scale and ancillary units from 1977-78 to September 1980 comes to Rs. 44.79 crores.

Hindu-Muslim Cultural Fusion

M. Hidayatullah*

THE MUSLIM TEMPERAMENT has always been a scientific one as opposed to empirical. This they demonstrated in their hey-day. Briffantt in his Making of Humanity directly spoke of this and I may be permitted to read to you a very short extract : "The experimental method of the Arabs was by Bacon's true wide-spread and eagerly cultivated throughout Europe... It was not science only which brought Europe back to life. Other and manifold influences from the civilization of Islam communicated its first glow to European life."

Therefore the learning generated a new spirit in Europe which goes under the name of Renaissance. The meeting of the East and West gave an impetus to art and literature, to theology and natural sciences and in fact every other branch of the liberal arts. Many of the Roman jurists wrote from Beirut and Constantinople. The influence from the East was that of Islam on Roman civilization.

In India something similar took place. Although India was subjected to many invasions by different peoples, they left no mark on the life and culture of the people worth mentioning. Indian life and culture continued as of yore, away from the centre of conflicts. The Indian Renaissance began when the Mughals brought into one whole the tattered remains of several kingdoms and imposed their own rule. Then began the true advent of the influence of Islam and there came about a blending of the different cultures. The Hindu culture and learning, itself of the highest order, was made better by the exchanges. In a recent book issued by the Panjab University under the Sheikh Baba Farid Foundation, on socio-cultural impact of Islam on India a number of contributions, edited by Dr. Attar Singh, catalogues the various changes which the different cultures underwent. The Hindu culture was regenerated in the time of Akbar and his two successors and there began an interplay between the ancient Hindu culture an dthe culture of new comers. Dr. Attar Singh's book is really a summing up and a post-script to the many volumes. The cultural Heritage of India', first published in three volumes in 1937 and now in five volumes of which the fourth brought out in 1956 deals with the influence of Islam. The Institute of Culture (Ramakrishna Mission) has done great service to us.

So strong was the Hindu culture that it withstood the orthodox unsloughts and it even moulded and tempered the culture of the Muslims. But there arose a considerable change in the thinking of the Hindus. The two cultures then stayed side by side unlike the civilizations of Iran and Egypt where the local cultures completely succumbed before the Arab culture and got annihilated by the Arab wave.

In India a new race developed which assimilated (except in matters of orthodoxy in religions and their practices) all the different communities. A new language got evolved which partook of the best from all. It was an amalgam of Sanskrit, Arabic and Persian. From this amalgam was created a new common vehicle of communication which continues even today although in recent years attempts are on foot to cause a cleavage again. There also developed on either side of this common language now called Hindustani there grew up Urdu and Hindi each with noble and exalting literature, and poetry and philosophy of the highest flights of imagination.

There was visible a general fusion and synthesis in almost every phase of life. The common dresses, the common food and unity in arts and music have marked out the generation of a new society. Muslims freely took for themselves anything in culture of others which appealed to them. Even in the religious domain where differences are not only more noticeable but are also fundamental, we find the influence of Islam. The Bhakti cult in the South according to Grierson was influenced by Islamic mysticism or sufism. Jalaluddin Rumi introduced SAMA, a devotional dance very similar to Hindu devotional dances. When the orthodoxy of the Muslim rulers was exercised, Sufis leaned more towards Vedanta philosophy and the Bhakti movement resulted. These were once again fused by the teachings of Guru Nanak Devji and led to the advent of Sikhism.

The process of communal rapprochement is till going on and we are watching it from all sides. Let us hope that the next century will see further interchanges of influences to give birth to a new and catholic society. ☐

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* Excepts from Vice-President's address at the International Seminar on Islam's contribution to the culture and civilization of the world—New Delhi. 30.1.81

Tamarind and Margosa Check Air Pollution

TAMARIND and Margosa are capable of absorbing dust and gas from the polluted atmosphere. These plants purify the atmospheric air. The dust is deposited on the leaves and gas absorbed by the leaves. This does not harm the plants in any way. This was found out in laboratory studies carried out jointly by the Toxicological Research Centre and National Institute of Botanical Research in Lucknow during last two three years. **The Institute has identified about 50 plants which check air pollution.**

Energy From Wind

S. K. Tewari, Narasimhaiah and A. C. Samaraj*

ALTHOUGH, applications like waterpumping, crushing and grinding of agricultural produce are traditional examples of wind energy utilisation, generation of electricity from winds has come to stay on its own more firmly during the present century. Small battery chargers and wind generators of a few kilowatt capacity have been in the market of industrialised countries for several decades. At present, practically all working groups in India are engaged on development of wind-powered water pumps and wind generators of less than I KW capacity. India in fact can utilise such small machines in large numbers because there are several millions of small farmers who can take advantage of wind-powered waterpumps. Small wind generators also have many potential uses with applications like remote location battery charging. Perhaps it is now time that a plan for generating electricity to be used in augmenting its supply from grids is prepared.

Veraval Time Series

An obvious first question is whether wind speeds in India are high enough to allow economical generation of electrical power. In order to estimate rated wind speeds, one requires time series records of the hourly wind speed. Such records are presently available for about 20 locations in the country and one of them namely Veraval on Saurashtra Coast is fairly windy obtaining an annual mean wind speed of 4.7 m|s. The hourly wind speed data for Veraval is processed to bring out specifics of energy generation using a typically large wind generator of say 34 M rotor diameter designed to generate 100KW in wind speeds of 8 m/s and higher.

In Table-1, the total energy generated during the year as a whole and certain combinations of months are shown in terms of the choice of rated wind speeds. The data presented in Table-1 has some interesting features. First of all, if we wish to utilise wind energy all the year round in an optimum manner, the rated wind speed should not exceed 7 m/s. In fact it is found to be just 7 m/s for the optima. On the other hand, if interested in using energy only during 3 windy months then the rated wind speed could be as high as 10 m/s. If only 4 windy months are slected then the rated wind speed could range anywhere between 7-10 m/s resulting only in a marginal decrease in total output associated with the choice of higher rated speed. Taking only 6 months from April to September, about 80 per cent of the annual energy availablity is obtained during this period. Even during the three months before the peak of South West Monsoon, namely May, June and July, almost 67 per cent of annual energy output is available.

Since wind electric generators contribute at their best during May-August period which precedes peaking of water level in hydroelectric reserviors, normally during August-September, a combination of these two is quite interesting. It is not likely that wind generated electricity would amount to more than 10-20 per cent of the installed hydro capacity in the near future. Even then the capacity contributed by wind generators would be very valuable for hydro system and further studies related to capacity credit and economics of whole system are recommended.

Other Locations

The next question is whether there are several other locations like Veraval. An answer to this is given in Fig-1, where wind energy availability in respect of some of the known windy locations is shown. It may be noted that the unit for the data in Fig-1 is kwh/m^2/day which has been derived from monthly mean wind speed raised to their power and mulitiplied by energy pattern factor and in appropriate time factor (2 hours for the day).The inclusion of energy pattern factor has been necessary due to non-availability of hourly wind speed data in respect of these places. It is thus seen from Fig-1 that there are several locations in the country where Varaval type wind speeds are available.

It is also observed from Fig-1 that in most cases fairly good averages exceeding 4 mwh/m^2/day are available for about seven months in coastal locations like Sagar Island, Puri, Dwarka and Veraval. At other coastal locations such as Dahanu, Alibagh and Devgarh similar values are obtained over five months' period. In most inland windy locations averages exceeding 4 kwh/m^2/day are found over six monthly period. Locations like Cape Comorin and Okha obtained free flow winds over water from North-East as well as South-West directions and thus show high average over almost 9-10 months. It may be further noted that Cape Comorin and Tuticorin receive good winds during December-January and February also besides middle months of the year. This is due to the influence of North-East monsoon which is quite effective on Tamil Nadu Coastline.

From the information presented in Fig-1, it is evident that wind energy offers a significant potential for power generation and an estimate of this is now discussed.

Potential

On clear days energy available from sunshine is of the order of 4-6 kwh/m^2/day. For about six months during the year, averages exceeding 4 kwh/m^2/day are also available from winds at several locations as shown in Fig-1. It is possible to state that in flat country side and coastal stretches, the data given in Fig-1 can be extrapolated over the neigbhouring area, say 20 km. in radius and over an

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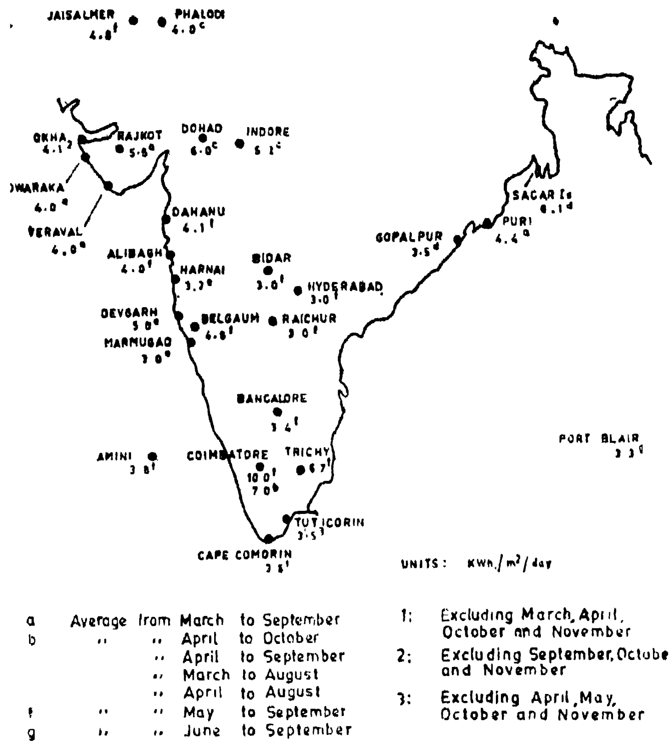
* Wind Energy Group, National Aeronautical Laboratory, Bangalore.



WIND ENERGY AVAILABILITY DURING SOME WINDY MONTHS

equivalent area on the coastal stretches. This much total area (33,900 km), if farmed with wind generators kept apart from one another by ten diameters could contribute over 34 billion kwh annually with an installed capacity of 19,000 MW. This is a highly conservative estimate because there must be many more windy areas which could be identified in future.

The efficiency of energy conversion in large wind electric generator is of the order of 35 per cent. On the other hand for large solar projects it is only of the order of 20 per cent. Thus the energy density of 4 kwh/m^2/day for winds is equivalent of 7 kwh/m^2/day for sunshine and, therefore, wind resources are by no means inferior to sunshine from this point of view.

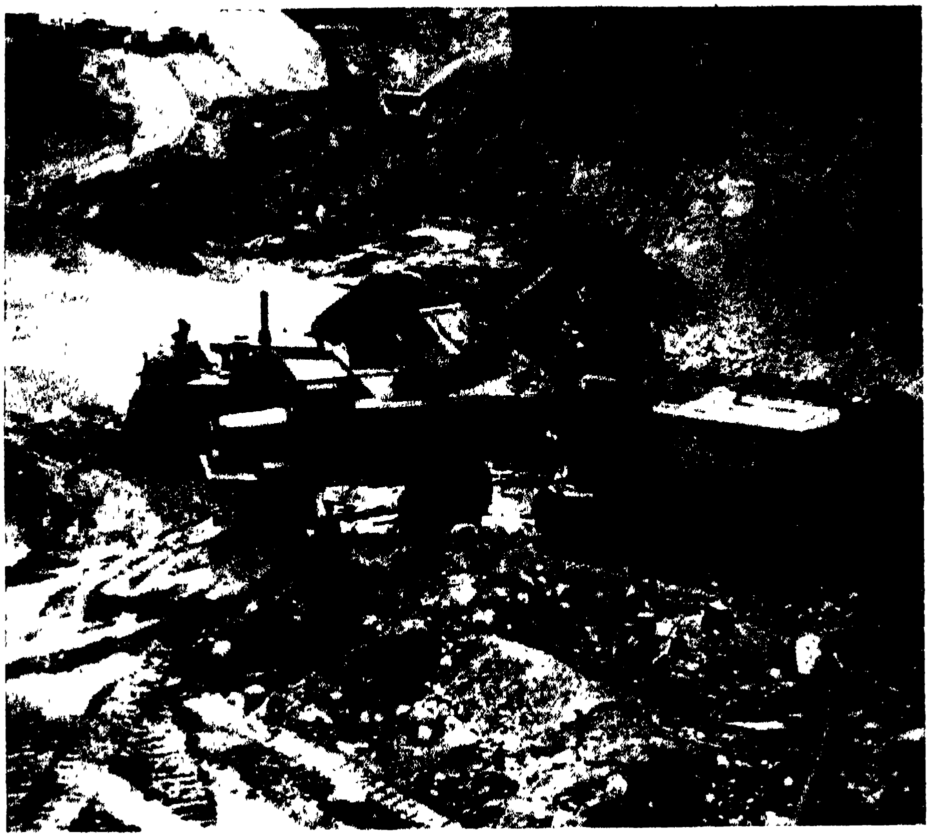
From the above data it is evident that significant potential for wind generation of electricity exists in the country. With further addition to data base with the help of survey conducted specially from wind-energy point of view, it should be possible to locate other windy areas. Certain topographical features are known to accelerate surface winds, for example, locations in Palghat gap in Western Ghats. The data in respect of Pilamedu (Coimbatore) distinctly shows this phenomenon in respect of South-West winds. Some such spots are also known to exist in mountainous regions such as at Batasia near Darjeeling. But many more are to be discovered. Also, the data in respect of coastal area suggest that exposure to anemometers installed there is not good. This however requires to be ascertained. It is perhaps now time to draw up a programme for location of windy spots as well as hardware development of large-size wind electric generator. The latter would be necessary to ensure that wind generated electricity is cost effective in view of the fact that rated operation is expected only for 24 per cent time of the year which could have implication on the cost of energy. At the same time it would be less expensive to produce labour intentive hardware such a composite material blades in Indian conditions. The question of economics is therefore quite open and can be resolved only through an experimental programme. □

TABLE I

WIND ENERGY ESTIMATION DURING THE YEAR

LOCATION : VERAVAL (GUJARAT)

	Assumed Rated Wind speed (m/s)						
	7.0	7.5	8.0	8.5	9.0	10.0	11
1. Installed Capacity (KW) with 34m motor	67	82	100	120	142	195	260
		Energy in 1000 Kwh					
2. **Whole year**	129	117	110	98	93	82	64
3. **Six Windy Months**							
(i) **April-September**	100	95	91	85	83	76	61
(ii) **May-October**	96	93	89	85	83	78	63
4. **Five Windy Months**							
(i) **May-Septembr**	89	88	85	81	80	75	61
(ii) **June-October**	86	84	84	81	81	76	62
5. **Four Windy Months**							
(i) **May-August**	79	79	77	75	74	71	60
(ii) **June-September**	80	79	79	77	77	74	61
6. **Three Windy Months**							
(i) **May, June & July**	61	61	61	61	62	64	56
(ii) **June, July & August**	70	70	71	71	71	70	60



Work in progress at the Baira Dam

Baira

A Project o

Vijay K.

INDIA is blessed with vast hydro-resources, and Hydro-power is the cheapest form of pollution-free energy. The Hydel-power potential of the country is 1,00,000 MW out of which only 11,000 MW have so far been exploited.

Towards harnessing hydroelectric potenial in Himachal Pradesh, the Baira-Siul Project is a major step. Located in the interior Chamba district, 165 kms from Pathankot, the project contemplates utilisation of the three tributaries of the river Ravi—Baira, Siul, and Bhaledh, for the generation of power.

The three tributaries have been linked by a network of tunnels. The flow of the Baira is diverted to the power tunnel by a 51 M high arch core rock-fill dam. The flow of Bhaledh is fed to Baira through a 7.82 kms feeder tunnel, and that of Siul, by a diversion weir. The 30.60 m. long weir is a low head gated structure with arrangements for providing silt-free water into the system through a drop shaft. The power tunnel is conducted into the head race tunnel by means of a drop shaft which is 100 m deep.

The head race tunnel which reaches the Baira dam is 7.63 kms long and concrete lined. The Baira dam is 51 m high above the river bed and 160 m long at the top. The overflow section of the left flank consists of a gated saddle spillway with two radial type, 12 m wide gates and a design discharge capacity of 2,380 cusecs.

The Baira spillway under construction has

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*Our Sub-Editor

Siul

Prosperity

The three tributaries of the river Ravi have been linked by a network of tunnels

has a dischargecapacity of 2380 cusecs

The combined flow of these three tributaries drops by a net head of 282 metres for generation of power. The power house, a reinforced cement concrete structure of 40 m×76.5 m is located on the right bank of the river Siul. It has three Francis type vertical shaft turbines and generators of 60 MW each. The annual power generation from the project would be 920 million KWH. The installed capacity of the project is 180 MW which will be fed through a 96 kms long, double circuit transmission lines, into the Northern grid at Talwara near the Beas Dam.

Impediments

The Project was taken up by the Union Government in 1970 but the work could commence only after 1975. In February 1975 the work was stalled because of a massive land-slide which buried the partially constructed power house. Another land-slide in 1977 created a mound of debris across the river blocking its course. The lake thus formed was filled with gravel and boulders completely chocking the diversion tunnel.

Such calamities forced the engineers to modify the entire construction plan as well as design of the dam. The modified design has enough precautions to avert such disasters and ensures the safety to the structures. The foundation of the dam is laid at a depth of about 50 m with grouting of bentonite, cement and an admiture of suitable chemicals.

The topography and geology of the project is such that the pace of work is slow. The catchment area lies in the steep and high ranges of the Himalayas. The climatic conditions and heavy rains restrict the construction work to only five or six months in a year.

In January 1978, the Project was taken over by the National Hydroelectric Power Corporation. The cost of the project at the time of inception was framed at Rs. 22.49 crore which according to the latest estimates has escalated to nearly Rs. 125 crore on account of overall hike in the prices of vital inputs.

The project is expected to be commissioned five months ahead of the schedule, in July this year. The first unit of the project was put on trial run in May, 1980 and a total of 18 million units of energy was transmitted to the Delhi Electric Supply Undertaking (DESU). It earned the project a revenue of Rs. 45 lakh. The second stage of the project is under completion. Work on the concrete spillway is also in an advanced stage and is expected to be completed by June-July, 1981.

It is estimated that the cost per Kw station is between Rs. 5,000 to Rs. 7,000. The cost per unit generation at this rate comes to only 13.16 paise. On completion the project will generate 920 million kwh of power per year accruing a revenue income of Rs. 22 crore at the rate of 24 paise a unit. The generation will be fed to the Northern grid boosting the industrial and agricultural activity in Himachal Pradesh, Punjab, and Delhi.

The Executing Agency

The National Hydroelectric Power Corporation, the executing agency of the Baira-Siul Project is a Central Government enterprise. The Corporation, formed in 1976 with a view to channelising the vast hydel potential in India, has at present six important Hydroelectric Projects under execution. These are : Loktak (Manipur) with an installed capacity of 3×35 MW, Baira-Siul (Himachal Pradesh) 3×60 MW, Salal Project (J&K) 3×115 MW, at the first stage; Devighat Project (Nepal) with an installed capacity of 3×4.7 MW, Koel Karo (Bihar) 6×115 MW and Dulhasti (J&K) 3×130 MW. Besides these projects NHPC has a number of transmission works at hand.

The Corporation undertakes the jobs of planning, investigation, research, designing, construction, generation, operation and maintenance of hydroelectric power stations and projects in India.

The Corporation will soon start work on many other projects in the country. It has three projects in Uttar Pradesh in the Sarda Valley in hand. These are the 900 MW Dhauliganga Project, the 450 MW Goriganga Project and the 80 MW Ramganga Project entrusted to it for investigation and execution. The Corporation has taken up investigation of 600 MW Kol Dam Project in Himachal Pradesh, 1900 MW Parbati Project and 640 MW, Chamera Hydroelectric Project in Himachal Pradesh.☐

The Port of Mormugoa

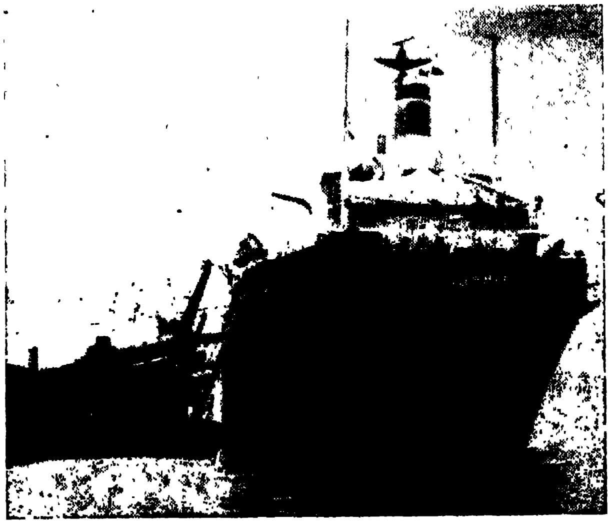
V. K. Abdulla*

Films Division

ENDOWED WITH natural resources, Goa has been fast developing economically since its liberation in the year 1961. And in this process, the role of Mormugoa Port has been very important, as it provides an outlet to one of the major export items, iron ore. It is highly sophisticated and the best mono cargo port in the whole of Asia with its mechanical ore handling complex, the barge unloading system, the fast loading system, and the modern deep draft berth.

Situated about 370 kms. south of Bombay and 575 kms. north of Cochin on the West Coast, Mormugoa Port is an open type natural harbour at the mouth of the river Zuari. It was built by the West of India Portuguese Guaranteed Railway Company having its origin in the Treaty of Lisbon of 1878 between the British India and the Portuguese government of Goa for commercial purposes.

Following the liberation of Goa, Mormugoa was declared a major port by the Government of India and a Board of Trustees was constituted for its administration. Since then the port has undergone many changes. It can now handle ships of loaded draft of 12 metres upto 60,000 DWT for full loading and vessels of even about 1,000,000 DWT for primary loading upto 70,000 DWT. In the handling of iron ore the oprt achieved the peak level of 13 million tonnes in 1973-74. The iron ore export accounts for over 90 per cent of its total traffic and 50 per cent of the country's total export of this commodity. The most interesting feature of the iron-ore traffic is that the entire quantity of ore exported from the Union Territory comes to the port by self-propelled barges using the inland waterways system provided by its navigable rivers—Zauri and Mandovi. The port has attained the distinction of being the first to have a mechanical ore handling plant set up by a local business house when such facilities were almost unknown in this country.



M. V. Summit, the first vessel of the required size to visit the port

Beside the quality of the iron-ore, loading arranagements at the port are very important for the iron ore buyers because the delay in getting the raw-material creates problems for them. The port has, therefore, to compete with many other ports in the handling of the ships. It has to match with the efficiency and promptness of the highly developed countries of the world. Therefore, a modern mechanical ore berth combined with efficient mechanical facilities was commissioned in October 1979. ☐

Marketing Problems of Village & Small Industries

N. D. Tiwari*

IT has been estimated that in the year 1979-80, the share of the village and small industries sector in the contribution made by the manufacturing sector was around 49 per cent in terms of gross value of output, and 51 per cent in terms of value added. As regards employment, this sector had offered employment opportunities to about 23.58 million persons (both part-time and full-time) as against around 4.5 million persons estimated to be engaged on a full-time basis in the large and medium industries sector. In the field of exports, the VSI sector accounted for more than one-third of the total exports of the country.

Market intelligence and assistance to small entrepreneurs, artisans and craftsmen is presently provided by the National Small Industries Corporation, the small industries Service Institutes, State level corporations for small industries, handlooms and handicrafts, the Central Silk Board, and the retail outlets of the Khadi and Village Industries Commission, the Coir Board, the All India Handloom Fabrics Marketing Cooperative Society, and the Handloom and Handicrafts Export Corporation.

A central scheme of Rural Marketing Centres at the block level was taken up on a pilot basis in 1978-79 to cater to the marketing requirements of artisans and tiny units. The Government has been providing marketing support to some extent through its scheme of stores purchase. As many as 379 items have been reserved for exclusive purchase from the small scale sector. The products of the small scale sector are also given a price preference of upto 15 per cent over those of the large and medium industries in the rest of the items. However all these are at best piecemeal and sporadic attempts in marketing promotion, and it has not been possible to make any significant headway in this direction. Production targets continue to remain primarily supply-induced in the hope that what is produced will be marketed.

During the Sixth Plan, it is proposed to evolve a well coordinated approach in the direction of demand forecasting, collection and collation of market intelligence and the strengthening and expansion of the internal market's infrastructure with a view to making it producer-oriented. Producers of similar or the same goods will be assisted to form groups and consortia, so as to market their products under common brands in competition with large industry. The working of Rural Marketing Centres will be evaluated.

It is proposed to evolve an integrated system of supply of raw materials and marketing of products through promotion of cooperatives and government sponsored agencies. In the field of government purchase, there is need for identifying more and more items of exclusive purchase from the small scale sector and developing a system for close monitoring at different levels.

It has been decided to have graded reservation lists (at the rate of 100 per cent, 75 per cent, 50 per cent) to be identified on the basis of production and supply capabilities of the small scale units having regard to the actual supplies made by them in the recent past. The policy of price preference to the products of small scale units would also be continued and implemented more vigorously. The central public sector enterprises have been directed to fall in line with the policy of preferred purchases from the small scale sector followed by the Centre; the State public sector enterprises are also expected to do so.

For external marketing, a number of Export promotion Councils for important manufactured products have been set up. There are Export Promotion Councils for handlooms, gems, jewellery and leather products. It has also been decided to set up separate Export Promotion Council for carpets and proposals for coir and silk are under consideration. While no separate Council to look after the interests of the small scale sector is visualised, Steering Committee has recently been set up for promoting their exports. It is also proposed to assist in the setting up of consortia for small scale industries and establish international sub-contract exchanges, undertake studies on export potential, develop market intelligence, exchange trade delegations, participate in trade fairs and organise seminars and workshops.

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* Minister for Planning and Labour. Excerpts from speech at International Marketing Convention, held at New Delhi on January 25, 1981

Facts about the Disabled

*Best available estimates suggest that 10 per cent of the world's population is mentally or physically disabled.

*The world-wide total of the disabled therefore stands at approximately 450 million.

*Three-quarters of those people are receiving no trained help whatsoever.

*146 million of the disabled are children under the age of 15. Of those :—

6 million are in North American
11 million are in Europe
13 million are in Latin America
18 million are in Africa
88 million are in Asia

*80 per cent of the disabled live in the developing countries where less than one per cent receive any specialised help.

*By the end of the century, there will be an estimated 600 million people of whom 200 million will be children.

*The incidence of disability in the developing world is increased by malnutrition and disease in pregnancy and early childhood, but decreased by a lower life expectancy and higher rates of infant mortality among disabled children.

*Modern medicine has increased the proportion of disabled persons by ensuring that more disabled children survive to adulthood and that more adults reach old-age in which disability is more prevalent.

*Taking into account the families of the disabled, and all those directly involved in seeking to support them, the U.N. has estimated that no less than 25 per cent of the world's people are affected by disability.

Causes

*Malnutrition · The greatest single cause of disability in the developing world is the malnutrition which can impair the normal development of both mind and body. Most vulnerable of all are children under five. According to UNICEF estimates, the number of under-fives now in the grip of severe protein-energy malnutrition is 10 million. The world total of people disabled by malnutrition is estimated at 100 million people.

Every year, 250,000, children, for example, lose their eyesight through the lack of Vitamin A.

*Disease : Communicable and non-communicable diseases disable an estimated 156 million people—approximately 3 per cent of the world's population

*Mental Retardation : Between one per cent and four per cent of the world's adult propulation is mentally retarded. The World Health Organisation conservatively estimates the total number of mentally retarded persons at 40 million.

*Mental Illness : 40 million people have a 'functional psychiatric disturbance'. The mentally ill occupy one-quarter of all hospital beds. One person in ten will suffer from a serious mental illness at some time in his or her life. At any given time, at least one per cent of the population is suffering from severe mental disorder.

*Congenital Disorders : Affect an estimated 100 million people.

*Alcohol and Drugs : 40 million people are estimated to be disabled through chronic alcoholism and drug abuse. And this may be a conservative estimate : in 14 out of 16 countries surveyed by the World Health Organization, the number of alcoholics exceeded two per cent of the population (for example four per cent in France, five per cent in Chile).

***Acc'dents :**

On the roads : The number of people killed on the world's roads each year is estimated to be 250,000—the equivalent of a city the size of Geneva or Nairobi. A further three million people a year are seriously injured in traffic accidents—and half of them are disabled. The present world total of those disabled on the roads is estimated at 30 million people.

At work : An estimated 100,000 people a year are killed in occupational accidents. A further 1.5 million are seriously injured and half of those are disabled. The world total of those disabled at work is now estimated at 15 million.

In the home : 20 million people a year are injured in accidents at home. 100,000 of them are disabled. The world total of those disabled by accidents in the home is 30 million.

Other Accidents : There are now an estimated three million who are disabled through war, natural disaster and sporting accidents.

***Deafness** : There are an estimated 70 million people in the world who are either deaf or have a severe hearing impairment.

*Blindness : An estimated 42 million are either blind or visually disabled. Trachoma is one of the world's most widespread disease, affecting between 400 million and 500 million people of whom two to three million are completely blind and a further eight million cannot see enough to earn a living. Onchocceriasis ('river blindness') affects a further 20 million people of whom 500,000 are blind and the same number have badly impaired eyesight.

*Cerebral Palsy : Claims an estimated 15 million victims through out the world.

***Leprosy** : Affects 15 million people of whom one-quarter are seriously disabled by the disease.

***Epilepsy** : Also affects 15 million.

(United Nations)

Public Enterprises In West Bengal

A. K. Bhaduri*

WEST BENGAL, the erstwhile premier industrialised State, has the rich heritage of pioneering industrial endeavour that heralded the birth of the country's many "first industries" thriving on its soil. Blessed with natural endowment and basic techno-economic advantages, West Bengal earned the significant status of industrial pre-eminence in India's economy and was able to build up magnificent monuments of massive industrial ventures based on jute, tea, coal, steel and engineering. During the post-independence period of planned development, West Bengal in its urge and quest for industrial development continued to march ahead with an impressive record of performance on a stable and diversified industrial base. In the planning era, this State also embarked on a programme of developing industrial and commercial undertaking under State ownership. The State has, therefore, the distinction of developing public enterprises in specific fields to stimulate the pace of industrialisation.

It may be mentioned that in the industrial pursuit, West Bengal required no incentives of any kind except those provided by geology, geography and history. Upto mid-sixties it occupied a dominant share in the country's industrial sector. After this stupendous problems of development coupled with major inhibiting factors afflicted the State. These problems led to stagnancy in industrial growth with its inevitable impact on the State's economy. In this crucial hour, suitable measures were initiated by the Government with a new strategy of planning, development and reconstruction to restore enterpreneurship for stimulating investment. In the Seventies, major Development Corporations were for the first time set up by the State Government to gear up the promotional machinery to meet the new challenge of industrial growth. In 1977, the first Industrial Policy for West Bengal was announced to infuse new dynamism in the State's industrial sector. A new package of incentives of expeditious growth and expansion of industries were also introduced in 1978. With these measures the State was poised for a new breakthrough, holding out great promise and hope for exploring new prospects of development.

Given below are the highlights of mjor Development Corporations which play pivotal role in West Bengal's industrial resurgence.

1 The West Bengal Industrial Development Corporation Ltd.

Set up in 1967, this Corporation was re-organised in 1972 as a major promotional agency to foster the development of large and medium scale industries. The package of services offered by the Corporation is as under :

(i) Project identification and promotion ;

(ii) Project development and appraisal and syndication of loan with all-India term lending institutions and banks ;

(iii) Administration of package of State Government incentives/subsidies and Central Government subsidies ;

(iv) Financial assistance of different types including underwriting of share capital debentures and providing guarantees;

(v) Promotion of joint sectors and subsidiary Companies in vital industrial sector and

(vi) Industrial follow-up, monitoring and service division.

In order to help the enterpreneurs to locate their projects, the WBIDC has studied new project possibilities with the help of a reputed consultancy organisation. Further project possibilities are under study by WEBCON (West Bengal Consultancy Organisation Ltd.). The WBIDC has completed syndication of loans and investments in respect of 59 units during 1979-80. During the year 1979-80 the WBIDC disbursed Rs 439.42 lakhs by way of refund of sales tax, power subsidy, octroi refund and feasibility study assistance as against Rs. 299.93 lakhs during 1978-79. The WBIDC have disbursed on these accounts the amount of Rs. 1186.52 lakhs since inception. The cumulative amount of Central subsidy disbursed till 31st March 1980 to 16 units stood at Rs. 148.81 lakhs. During 1979-80 the WBIDC disbursed Rs. 835.94 lakhs by way of various types of financial assistance including guarantee for loan as against Rs. 777.70 lakhs in the previous year. As on 31st March 1980 the Corporation subscribed and paid up the amount of Rs. 582.50 lakhs towards the share capital of its assisted Companies and also advanced an additional amount of Rs. 141 34 lakhs towards subscription in share capital of certain joint sector projects, thus the involvement of the Corporation totalling Rs. 723.84 lakhs.

The WBIDC has promoted several projects in the joint sector which have either been commissioned or are under varying stages of implementation. Up to 31st March 1980 the WBIDC received approval for 15 projects with an estimated capital cost of Rs. 404.71 crores.

Haldia Petrochemical Complex

The Haldia Petrochemical Complex promoted by the West Bengal Industrial Development Limited is a major project of particular importance, offering immense scope for rejuvinating the State's industrial base and also to boost the State's economy. The proposed complex will consist of five units viz :—

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*Deputy Secretary, Commerce and Indusry, West Bengal.

(a) Naptha Cracker producing Ethylene, propylene, pyrolyses gasolene, butadine & benzene as major products ;

(b) High Density Polythelene, Vinyl Chloride Monomer & Polyvinyl Chloride ;

(c) Ethylene Oxide & Ethylene ;

(d) Glycol ; and

(e) 2-Ethyl Hexanol.

The letter of intent for the project issued on Nov. 11, 1977 stipulates, inter alia, grant of industrial licence subject to approval by the Central Government of the detailed project report and the financial arrangement for setting up the complex. *Progress of The Project.*—The captial investment of the project has been estimated at Rs. 428 crores. Site survey and soil testing have also been completed. Negotiations on contract agreements with foreign contractors, for know-how, basic engineering equipment and service are in progress and are expected to be finalised shortly. The project has been scheduled to be commissioned within the next three and a half years. The commissioning of the project will unfold prospects of development of a large number of chemical and ancillary units in the eastern region.

2. West Bengal Industrial Infrastructure Development Corporation

This Corporation was set up in 1973 for planned development of industrial infrastructure in new growth centres/backward districts of West Bengal to attract industrial development besides trading and commerce in a planned way. The major work for extending infrastructure facilities in the growth centres/backward areas is generally in the form of acquisition and allotment of developed plots to the entrepreneurs, development of road and railway facilities and other basic amenities besides arrangements for water and power supply. The Corporation has already taken up the work at three new growth centres viz. Kalyani, Haldia and Kharagpur.

Kharagpur.—The Kharagpur growth centre has two sectors—(i) 234 acres of low-lying land on the northern periphery of the Kalyani township-sector-I and (ii) 102 acres of land connected with township through the NH-34-Sector-2. About 83 acres of land have already been allotted to the industrial units in Sector-2 and in Sector-1 nearly 46 acres of low-lying land have also been allotted on "as it where is" basis to a few industrial units. The Ground Water Supply Scheme with about 1 mgd capacity in Sector-2 of the growth centre is being executed at an estimated cost of Rs. 9.26 lakhs. Construction of internal road of a total length of 1.24 k.m. has been completed at an estimated cost of Rs. 4.50 lakhs. The first phase of construction of surface drain in Sector-2 has also been completed at a cost of Rs. 1.87 lakhs. Regarding power supply the WBSEB has taken up the work of installation of one 33/11 KV Sub-station in Sector-2, besides the supply of power from the existing grid.

Kalyani.—The Kalyani growth centre comprises two sectors—Sector 'A' on the Southern side of NH-6 and Sector 'B' on the Northern side of NH-6. The Corporation has taken possession of about 75.50 acres of land in Sector 'A' and about 169.49 acres in Sector 'B'. About 94 acres of land comprising 59 acres in Sector 'B' and 35 acres in Sector 'A' have already been allotted to ten industrial units. The Corporation has taken up the construction of an Industrial Housing Complex over 31.3 acres of land in Sector 'A' at an estimated cost of Rs. 95 lakhs to let it out on long term lease to industrial projects coming up in this growth centres. Out of 211 units planned, construction of 190 units has been completed. The Corporation has also mooted a proposal for acquisition of another 243 acres of land to be earmarked as Sector 'C'.

Haldia.—The Haldia Growth Centre is accessible by rail, road and river from Calcutta. About 74 acres of land in this growth centre has already been allotted to nine industrial units and negotiation for further allotment of 23.5 acres of land to industrial units is in progress. For providing railway siding facilities construction of a railway siding of a length of about 0.7 k.m. within the growth centre has been completed at a cost of Rs. 5.27 lakhs. The Corporation has also constructed metalled road of a length of about 3 k.m. at a cost of Rs. 12.90 lakhs for strengthening roadways system in this growth centre. WBSEB arranges supply of power from the existing grid.

Siliguri.—The Siliguri growth centre has been proposed to be developed at a strategic point in North Bengal. WBIIDC has already advanced Rs. 16.02 lakhs to the State Government for acquisition of 240 acres of land. No land has yet been obtained by the Corporation.

THE WBIIDC has initated suitable steps with the concerned authorities for acquisition of suitable land at Farakka, Asansol, Durgapur and also in Purulia district for strengthening infrastructure facilities in the aforesaid growth centres. Thargram (District Midnapore)—In area about 21 acres of land have been acuired and handed over on leasehold basis to an industrial unit for its existing operation and expansion plan. Besides this, about 50 acres of non-agricultural land under Jhargram Police Station has been obtained by WBIIDC and made over to a paper expansion of their project.

Anselgunj—Kurseong (Darjeeling).—Permissive possession of about 8.5 acres of land has been received but acquisition is yet to be finalised. On permissive possession basis about 5.7 acres of land have so far been allotted to two industrial units and further two acres of land have been earmarked for one of them for expansion of their project.

Raminagor—District, Nadia.—The WBIDC has obtained about 11.35 acres of land in this area on permissive possession basis and allotted the same to a paper manufacturing project coming up in this area.

3. The West Bengal Electronics Industry Development Corporation

It was set up in 1974 as a subsidiary of WBIIDC to promote the development of electronics and allied industries. It has the following major areas of activity.

(a) Support and incentives to private entrepreneurs ;

(b) Support in Test and Quality Assurance facility, research design and development facilities ;

(c) Constructing electronics industrial estate ; and

(d) Implementation of various projects in the joint or public sector to promote electronics development in the State.

The Corporation has built up an Industrial Electronics Complex at Taratolla, Calcutta with basic facilities to accommodate small scale electronics industries. The Coporation has its own Test and Calibration Centre. The R&D activities of this Corporation have been expanded for the development of Automatic Train Operation System, Traffic Control System, Control System for Rope-ways etc. The Corporation has also set up the Marketing Division and Project Management Cell. The Corporation has selected Salt Lake city as growth Centre for electronics development. The Corporation has already promoted joint sector; wholly owned subsidiary companies for implementing a number of electronics projects, of which, a few projects, have already commenced commercial production and others are at varying stages of implementation.

4. West Bengal Sugar Industries Development Corporation Ltd.

The West Bengal Sugar Industries Development Corporation Ltd. was set up in 1973. In West Bengal there are two sugar factories—one in the public sector (Ahmedpur Sugar Mill) with 600 TCD and the other in private sector at Plassey, Nadia with 1250 TCD. The Ahmedpur Sugar Mill was taken over by the Corporation in 1973 for its rehabilitation. The Corporation received an industrial licence in 1978 for expansion of the existing capacity of the Ahmedpur Sugar Mill to 1250 TCD.

5. The West Bengal Pharmaceutical and Phytochemical Development Corporation Ltd.

The West Bengal Pharmaceutical and Phytochemical Development Corporation Limited was set up in 1974 for promotion and development of Drugs, Pharmaceuticals and Phytochemical Industries in this State. A few projects taken up by the Corporation are highlighted below in brief :—

A. *Pharmaceutical Industries*

Salicylic Acid/Aspirin.—The Corporation received approval of this project in the year 1977. It is negotiating with a well reputed foreign firm to acquire the technology. The indigenous technology has also been located and both the proposals are under scrutiny.

(ii) 8-*Hydroxyquinoline.*—The indigenous technology for this drug intermediate item is located. Steps have been taken to promote a joint sector Company with local collaborator.

(iii) *Meta Chloroaniline.*—Approval for this drug intermediate item has been received. Indigenous technology for the item is available. The feasibility report has been finalised and project will be taken up in the near future.

(iv) *Bulk Drug Complex.*—The Corporation have acquired 55 acres of land near Calcutta. It is being developed for allotment to various bulk drug manufacturing units interested in setting up factories there.

(v) *Infusions (India) Limited.*—This is a joint sector project promoted by the Corporation in collaboration with a private entrepreneur. The project has already commenced commercial production. The project's R&D unit has also initiated plans to develop new drug formulations.

(vi) *Testing Laboratory.*—A Research-cum-Analytical Laboratory has been set up in the premises of this Corporation for chemical and microbiological testing of bulk drugs formulations and crude drugs and biological testing of cosmetics and distinfectants.

B. *Phytochemical Industries* :

Negotiations are afoot for obtaining about 400 acres of land in North Bengal for the purpose of commercial cultivation of medicinal and aromatic plants.

(i) *Citronella Cultivation Project.*—The Corporation has already completed cultivation in 60 acres of land in North Bengal for this project. The distillation of oil has already been taken up. Another 40 acres of land is being prepared for cultivation in North Bengal. The plans have been initiated to cultivate mentha piperata plants in about 75 acres of land.

(ii) *Production of Papain From Papaya.*—The Corporation proposes to promote a joint sector Company to manufacture papain from papaya fruits with most modern methods. A suitable land for this purpose has been located in an area near Calcutta. It may be mentioned that papain is widely used in pharmaceutical formulations as digestive enzyme.

(iii) *Adhatoda Vasica Cultivation.*—The Planning Department. Government of West Bengal has requested the Corporation to provide medicinal plants for plantation by farmers. The plant adhatoda vasica popularly known as Vasaka has been identified by the Corporation to be more suitable for such purposes. The leaves of the plant have demand for medicinal use. The Corporation proposes to supply the plants to farmers through Panchayats. □

Exports of Gems and Jewellery

INDIA exported gems and jewellery worth Rs. 418.5 crore from April to November last year. According to provisional figures released by the Gem and Jewellery Export Promotion Council this represented an increase of 14.6 per cent over the export during the corresponding period of 1979. It is anticipated that when figures from al sources are available the actual exports during the period will range from Rs. 425 to 430 crore. It is hoped that with better performance in the first quarter of 1981 the exports during the current financial year will achieve the overall target of Rs. 720 crore. But this in turn depends on acceptance, by the Government, of the proposals of the Gem and Jewellery Export Promotion Council for abolition of import duty on rough precious stones, raw pearls, rough synthetic stones and glass beads and announcement of a definite gold jewellery export policy.

Window on the World

Economic Development in Thailand

Navin Chandra Joshi*

THAILAND is situated in the south eastern corner of Asia, with Burma on the West, Laos and Cambodia on the East, Malaysia to the South, and Burma and Laos to the North. It has a land area of 518,000 square kms. and a population estimated at 45,000,000. About 60 per cent of the land area of the country is under forests.

Through a millennium of evolution, from the earliest days of tribal migrations up to the present, natural, physical, human, cultural, religious and spiritual forces have served as catalysts and modifiers to give Thailand its unique national identity and bring about the prosperity and security it enjoys today. Its geography and climate guarantee plentiful supplies of food. Abundant water, ample sunshine and rich soil ensure plentiful growth of fruits and vegetables. Lowland areas continually inundated by rains and a multitude of rivers and streams are eminently suitable for rice culture.

Thailand's geopolitical position ensures that it is a meeting point of the big nations like China and India. It absorbed cultural values and traditions from both the countries and these together with indigenous values are welded into the unique Thai cultural personality. The exposure to Western liberal philosophies and ideas have had an effect on young Thais overseas. Those who felt that development should proceed at a faster pace took matters into their own hands by staging a coup in 1932. The year 1932 marked more than a change in political philosophy; it represented an awakening to new economic realities that would see the emergence of a broader-based, more stable economy over the ensuing decades. The World depression of the 1930s had a delayed but profound effect on Thailand. By then a solidly-entrenched member of the world community, Thailand found its economy vibrating in sympathy with fluctuations on world markets. To cope with them, a new economic order had to be created.

With the changes emerged the entrepreneur class as a new force in the country's development. Being better educated than their predecessors and far-sighted they began moving away from a total dependence on rice into the arenas of world trade beyond the boundaries of traditional markets in China and neighbouring countries. Though there was stress on industrialisation the farming sector received strong government encouragment, of course to a lesser extent than it received in the 1970's.

In the post-depression period, the country's population grew unchecked at about 3 per cent per annum. Land being plentiful, the country was able to absorb the expanding population. Farmers began clearing forests and hill areas to plant crops. Thus, while the urban economy was becoming technologically sophisticated, the economic activities in rural areas were diversified. More and more farmers produced cash crops creating a new type of economy with specialisation and trade links between countryside and the cities and among different regions.

Throughout 1940's and 1950's a big political economic experiment to evolve a new governing system to meet new economic challenges took place in Thailand. By late 1950's, it was felt that there was need for a long-range central economic planning if the country was to develop in a systematic manner. A six-year economic development plan implemented in 1961 raised national income by 7.6 per cent annually as compared to 5 per cent in the preceding decade. Gross national product (GNP) increased from 55 billion Baht in 1961 to 97 billion Baht in 1966. Gold and foreign exchange reserves rose by 15 per cent annually during the period and the Baht became, and it remains even today, one of the world's stablest currencies. As inflation elsewhere began to assume alarming proportions, prices in Thailand rose by less than 2 per cent a year a performance much envied by other countries.

A number of growing problems underlay the rising GDP in the wake of economic boom. But in euphoria of unprecedented economic prosperity many of them were left unsolved. Population pressure, decreasing soil productivity, a pervasive yet cumbersome and centralised bureaucracy, changing regional loyalties widespread political, social and economic dissatisfaction and the widening socio-economic gaps were beginning to make themselves felt. The decade also witnessed the growth of the middle class and of educated elites spearheaded by university students. The latter became more vociferous and set the stage for the next major turning point in modern Thai history, the popular uprising of 1973 and the subsequent intense involvement of a wide spectrum of the populace in the domocratic process.

Today Thailand's economy is one of the strongest in the developing world. Traditionally an agrarian nation, it can boast of a complex, multi-faceted economy embracing industries, employing the latest and most sophisticated technology. Blessed with large expanses of fertile land and ideal agro-climatic conditions, Thailand not only enjoys agricultural self-sufficiency but is one of the world's few exporters of food. With its agrarian base the economy has experienced steady, stable growth. The introduction of improved technology and marketing expertise has made Thailand a world leader in the marketing of staple commodities. It has also transformed the country into a fast-growing manufacturer of sophisticated articles of international standards which find ready acceptance in world markets.

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* Moti Lal Nehru College

Thailand's major foreign exchange earners in the late 1970's have been the crops grown on its rich soil. It ranks as world's number one supplier of certain agricultural commodities. Besides being the world's premier exporter of tapioca and second largest exporter of rice, it is a leader in the production of maize, frozen shrimp, canned pineapples, natural rubber and sugar. The country's industrial sector produces a large number of goods ranging from textiles to integrated circuits, knocked-down furniture and fibreglass. Its rich reserves of minerals are eagerly sought for by the world's industries.

Rice forms the core of the Thai economy. The country is the world's third largest producer of natural rubber after Malaysia and Indonesia. Tobacco is another important export crop. The Thailand Tobacco Monopoly, a state enterprise, both imports and exports large quantities of the leaf. A myriad of delicious tropical and temperate fruits thrive in Thailand's humid climate. Flowers are also an important export crop. Thailand is currently the world's biggest supplier of orchids. About 2,000 commercial growers, mostly in Bangkok area, produced enough blooms in 1977 to earn 130.5 million Baht in foreign exchange. And the market continues to grow.

The country's wide variety of hard and softwood forests have created a burgeoning wood industry. Processed wood and wood-derived products have gained importance during the past decade. Mineral reserves are varied and rich. Gemstones, among them legendary sapphires, have also for long been mined in Thailand. In recent years, the limelight has shifted to other modern buried treasures, natural gas and oil in the Gulf of Thailand.

Over the last two decades, the national income increased by about 8 per cent per annum. Economic growth has been broad-based with all economic sectors participating in the development process. About three-quarters of the country's working population is engaged in agriculture and is earning about one-third of the national income. Over the years, however, the industrial and service sectors have been increasing their shares of the total GDP. The industrialisation process initiated during the 1960's was geared towards import-substitution. In 1970's it began to produce export-oriented items. By the mid-1970's Thailand was exporting manufactured goods ranging from cement to watch parts, canned fruit, garments, chemical products, transport equipment and television sets.

International trade is vital to the Thai economy. Today, export and import transactions together account for about half of the national income. Sharp increases in oil prices during the past few years have, however, affected the balance of payments position adversely. The current Fourth Five Year Plan (1977-1981) calls for a growth rate of five per cent per annum in foreign trade. Although the relative importance of the agricultural sector has declined, it continues to be the dominant sector of the Thai economy for several years to come.

One important aspect of industrial development in Thailand has been the private sector's rapid response to shifting market demands. This is reflected in the changing structure of manufactured imports and exports since the early 1960's. In 1955, Thailand's imports of manufactured goods accounted for about 75 per cent of the total value of imports. By 1976, the proportion had declined to about 64 per cent. There has also been a marked shift from import of consumer and manufactured goods to that of intermediate products, machinery and transport equipment. Consequently, Thailand now manufactures for export what it used to import earlier. The export of the country's manufactured goods have risen from 2.4 per cent of the total export earnings in 1957 to the over 17 per cent.

Today Thailand's economy is the strongest in the developing world. Traditionally an agrarian nation it can boast of a complex, multifaceted economy embracing industries employing latest and most sophisticated technology. It enjoys not only agricultural self-sufficiency but is also world's few exporters of food.

It is evident that Thailand's manufacturing sector's performance has been impressive while it has also created its ability to expand and adapt to world market conditions. All this has been possible for the reason that Thailand is predominantly a free market economy with the private sector's involvement in most of the economic activity. Public sector involvement is largely limited to providing a framework for the economy's regulation and expansion. Foreign trade now accounts for a major portion of the national income. Its importance has grown substantially over the years and its share is now about 45 per cent of the total national product.

Thailand's traditional export markets are concentrated in the East Asia region. In 1977, Japan took up 20 per cent of total exports. The excessive dependence on regional markets has, however, led to sharp fluctuations in earnings from primary • commodities. Until 1974, the country enjoyed favourable terms of trade but later on, due to the continuing increase in fuel prices, world-wide inflation and the decline of primary product prices in the world market, the terms of trade became less favourable. Therefore, the trade deficit has been increasing gradually over the past decade. During the First Plan (1961-66) it was about 2,367 million Baht per annum on an average. In 1978 it went up to 29,072 million Baht.

The trade deficit has been financed largely through income from services and foreign capital inflow. Therefore, there was no significant deficit in the overall balance of payments; rather, there has been a surplus butteressed by improved performance on the export front in mid-seventies. There is no doubt that Thailand, like other developing countries, has to meet enormous challenges of development. Whereas developed nations have had at least a century to adjust to industrialisation, developing nations have had an avalanche of chanages to contend with in the life span of a single generation. The wholesale application of techniques developed in the West has often proved ineffective. With the inadequacy of traditional methods and ot propriate technology imported from the West, Thailand had to discover its own methods for implementing the changes. Fortunately, the cohesiveness in Thailand has led to stability even in times of economic

(*Contd. on page* 31)

Tribal Handicrafts of Uttarakhand

Rajiv Ranjan Prasad and A. K. Kapoor*

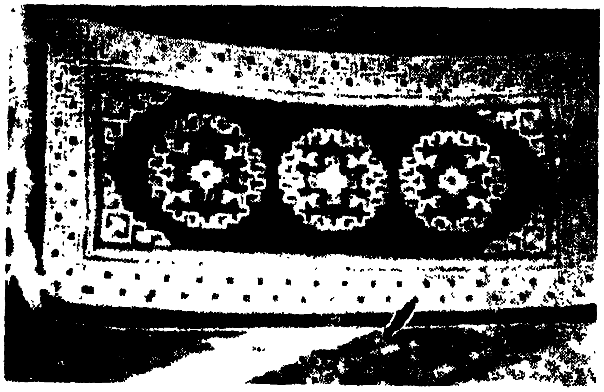
UTTARAKHAND comprises the regions which include Kumaon and Garhwal hills in the Central Himalayas. This whole area, replete with marvellous beauty of nature, is the home of many exquisitely beautiful handicrafts having certain distinct characters of their own. The traditions of the various crafts have been handed down from one generation to another and are a part of the cultural heritage of Uttarakhand.

The people of Uttarakhand, due to their isolation, had to be self-sufficient in most respects. Cottage industries are essential aspect of self-reliance. The important handicraft of the area are the baskets and matting from the 'ringal' bamaboo and hamp, leather articles and wood carving and wool-weaving. While the basketry, matting and wood-carving etc. are prevalent throughout the length and breadth of the Uttarakhand, wool-weaving is done exclusively by the tribals inhabiting the three border districts namely, Uttarkashi, Chamoli, and Pithoragarh. The tribals of these three districts are popularly known as BHOTIA and are divided into five endogamous groups viz., *Jead, Tolcha, Marchha, Johari*, and Shauka Bhotias. In this paper an attempt is made to describe the different woollens handicrafts of Bhotia tribals and the problems and prospects of this industry.

Woollen Handicrafts

Manufacture of woollen goods is the main cottage industry of the Bhotia tribals. Wool spinning and weaving is a part of everyday routine in a Bhotia family and all family members participate in this cottage industry. The Bhotias generally employ three varieties of raw-wool. For coarse woollen handicrafts like blankets, ropes and bags, they use the shearing of cis-Himalayan or local bred carrier-goats and sheep. For ordinary medium grade products, the wool of the 'Byun' or the flocks set aside for the propagation is utilised. And for exceptionally fine products, the '*pushm*' wool is used.

For spinning the shorn-wool is first soaked in hot water, beaten and washed. The wool is spun generally by menfolk into different beautiful textures. The spinning of wool is done with a hand spindle or '*Katwa*' or '*talki* and '*charkha*'. The hand-spindle of the Bhotias consists of a little bamboo stick to the bottom of which a small round weight is fitted. The Bhotia keeps his spindle twisting all day long and especially when he is sitting by the fireside, or engrossed in the gossips. A Bhotia is always busy with his spindle or '*Katwa*' during his marching hours,. or when he is tending flocks in the forest. His assuidity is so great that he walks with one eye on his laden goats and other on the spindle. He is always to be seen with a skein of wool which he carries on his wrist like a bracelet, and he goes on spinning even when talking, walking, sitting or carrying a load.


'Dann' pile carpet woven by the Bhotias

The Bhotias spin two types of woollen yarns viz., (a) single ply yarn for coarse textures, when the raw wool is spun into yarn by applying tors on anti-clockwise; and (b) two ply yarn for closure textures-when single ply threads are combined by applying a clockwise torsion. The spun yarn is woven into beautiful fabrics. The looms or 'Kaanch' on which the Bhotia women weave the woollen fabrics are simple and primitive. It consists of ten or twelve small sticks and a few cords and leather straps fitted in a rectangular wooden frame.

The Bhotia tribals of Uttarakhand enjoy a good reputation as the producers of woollen fabrics. Nowhere else in the region the woollen industry is so inextricably intertwined with the whole texture of domestic and social life. Given below are the woollen fabarics for which Bhotias are known as the specialised manufacturers :

Thulma

It is a thick woollen blanket which is first made in the form of a coarse woollen serge and then three or four coarse serge pieces are sewn together to make the blanket. After sewing the coarse woollen serges into a blanket form, it is flurred and then combed. Combing is done with the sharp bamboo needles, fastened together like a broom. This is a very delicate work, and the value of the blanket or '*thulma*' depends on the successful results of the combing. Usually six to eight days are required for the manufacture of a '*thulma*'. Some 5 to 10Kgs. of wool is used while making one '*thulma*'. Johari Bhotias of Johar valley in the Pithoragarh District excel the other Bhotia groups in the making of woollen 'thulmas' because of their expertise in combing and weaving of this type of blanket.

Pankhi

'*Pankhi*' is a coarse, warm woollen wrapper. Two to three widths of coarse woollen serge are stitched together to form a *'Pankhi'*. Sometimes they are of single thickness, sometimes double. *'Pankhis'* are lighter in weight than the *'thulmas'* and are generally used by those people who cannot afford the costlier products.

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Chutka

When thick coarse rugs with long hair are loosely woven in the midst of yarn, it is known as *'Chutka'*. The hairy side of Chutka looks like the fleece of a goat, and the other side is plain and even. The size of the *'Chutka'* is similar to that of a *'thulma'* but the cost is a little less.

Dann

'Dann' is a small pile carpet, usually the size of a cot or a bed sheet. The 'Dann' is made in several designs using a variety of colourful shades. The Bhotias have successfully imitated the Tibetan and Persian design for the textures which they weave in their woollen carpets. The yarn for making *'Dann'* is washed and dyed before weaving. The *'Dann'*, like *'thulmas'* and *'Pankhis'*, is woven on the loom (Raanch).

Asan

'Asan' or prayer rugs are generally square in shape and its length is just half that of the *'Dann'* and follows closely to it in its design and weaving technique. They are used by the hill peoples as prayer carpets.

Besides these five items, the Bhotias have also started manufacturing fine woollen serge, pull-overs, mufflers, woollen caps, socks, etc.

Problems and Prospects

Woollen handicrafts of Bhotias are not only means of livelihood but also reflect their craftsmanship. Until the closure of Bhotias' trade with Tibet, these two elements of Bhotias' handicrafts were greatly attuned to their socio-economic life. But after the cessation of trade with Tibet, the Bhotias' woollen industry has witnessed a great set-back. The most important factor behind this is the acute shortage of raw-wool, which, used to be imported by Bhotias from Tibet. But after non-availability of the raw-wool due to the sharp decline in the flocks of the Bhotias and stoppage of import of wool from Tibet, there has been tremendous effect on the woollen industry and the income accruing from it.

The State Government has taken various steps to supply wool to these people through the Khadi Gramudyog Commission, impart training in carpet weaving and provide technical equipments at concessional rates etc. But the authors found during the survey among the Bhotias that these measures have just served as palliatives for the Bhotias and not a permanent solution to the perpetuating problems pertaining to the availability of wool and marketing of the finished woollen products. Bhotias have lost monopoly over woollen industry and have become dependent upon the insufficient quantity of wool supplied by the Khadi Gramudyog Commission, to supplement the little they get from their own meagre flocks. No steps have been taken to modernize the age old woollen industry of the Bhotias. Though the Bhotias have gained considerable reputation for their woollen fabrics, the articles produced by them are not sophisticated enough to capture the market in the urban centres. They still spin and weave with their age-old techniques, which affect not only the quality of the finished products but also reduces the quality in terms of finenesse and smoothness. In fact the technique of production needs a scientific change so that the quality is improved and large scale production is made possible. The weaving plants, wool training-cum-production centres, wool utilisation centres and sale depots, etc. suffer from various problems which are invariably local in nature and necessitate an appraisal in view of the peculiar environmental condition. The basic factor involved is that of distances and the peripheral location of the present centres is far from most of the Bhotia villages which are situated in the interiors. In such a region of rugged terrain where transport and communication facilities are too meagre or non-existing, emphasis should have been laid towards setting up of training and production centres within easy reach of a group of settlements, if not for each individual village. It is quite imperative that the woollen products of Bhotias should find a ready market through a wide publicity at various urban centres of Uttarakhand and beyond it.

Economic Development in Thailand

(Contd. from page 28)

stress. As the country enters the 1980's, it has to encounter a host of new opportunities as well as their concomitant challenges.

Thailand's investment promotion law has pledged to make the country a safe, convenient and profitable investment market for foreign enterprises. Some of the incentives offered to promoted companies are :

1. Income-tax exemption of three to eight years. Any losses which may be incurred during the period of the income-tax holiday can be carried forward and deducted as expenses for up to five years.
1. Tax exemption of up to 100 per cent on imported machinery.
3. A tariff exemption of up to 90 per cent for the import of raw materials.
4. A total exemption of up to five years on withholding tax on royalties, goodwill and technical fees.
5. For promoted projects in an investment promotion zone, a reduction in business tax up to 90 per cent for not more than 10 years.
6. An additional incentive for projects in investment promotion zones, a 50 per cent reduction in income-tax for five years, outside the normal three to eight year tax holiday.
7. The guarantee of visas for prospective investors and work permits for technicians and experts working for promoted firms.
8. The establishment of the investment Services Centre through which investors can deal with all government agencies in setting up their business.

These incenties should be deemed sufficient for boosting private investment from abroad.

Prosperity Through Poultry

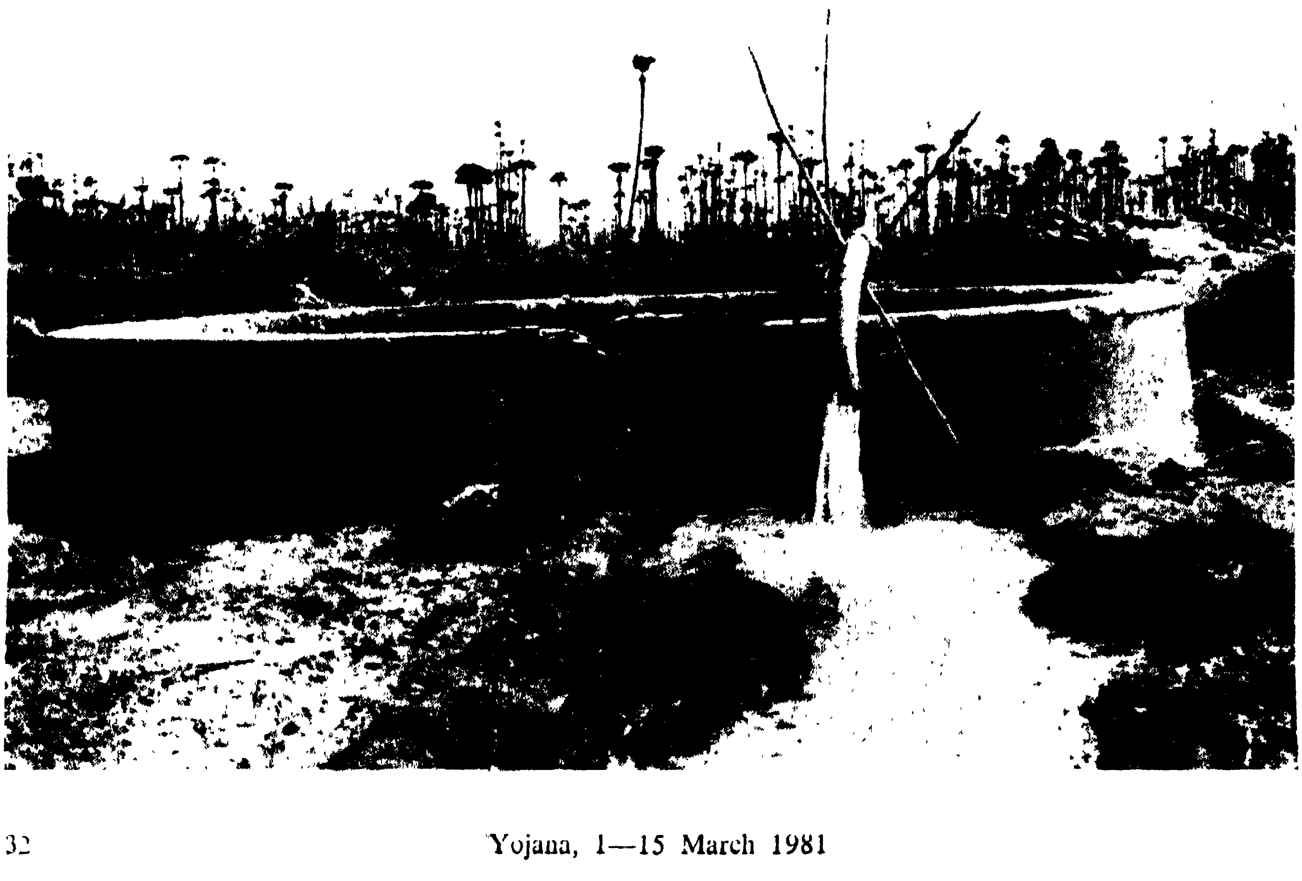
(Contd. from Cover II)

land, at a cost of Rs. 20,000. They were financed by the SFDA and SC's BC's Corporation. Again under the food for work programme the labourers were asked to dig the wells. As there were no contractors, middlemen and the actual beneficiaries were involved in the work and construction of community wells completed in record time at a cheaper cost. Oil engines were also fitted to the wells. The agriculture department came forward to guide them in intensive agricultural methods. With the assured water supply they started in the beginning with hybrid jowar and bajra. Later they switched over to raising vegetables which had great demand in Visakhapatnam.

But one acre of agricultural land per family can hardly provide full time employment to the labourers. To augment their income by making them devote their leisure time to other productive purposes, the SFDA, the SC's BC's Corporation and the district administration introduced poultry, dairy and other allied activities. Accordingly 30 agricultural labourers were asked to take up dairy farming and fifty persons were assigned poultry on a small scale in the beginning, expandable at a later stage. The farm labourers selected for poultry were given one month intensive training in the field at Poultry Marketing Centre, Vishakhapatnam. The decision to encourage poultry and dairy was based on the existing ready market at Visakhapatnam city with six lakh population. To start with, each labourer is given a unit of 100 to 250 birds. Later the unit will be expanded to 500 birds. The initial production of eggs is about 10,000 per day, which will go up to 20,000 when the number of birds is increased. The Srivisakha Grameena Bank, SFDA and District Industries Centre provided loan with a subsidy of 1/3 and 1/5 marginal money for constructing sheds and purchasing equipment, meter tubes, medicines and feeders. The Coastal Hatcheries, Visakhapatnam supplied Babcock bred chicks on priority basis. Thus at the total cost of Rs. 1.66 lakh poultry farming on cooperative basis was launched. As it is the first time for the beneficiaries to rear chicks the Poultry Marketing Centre, Visakhapatnam reared the chicks for seven weeks and handed over them after vaccination to minimise the risk to the labourers. Tie up arrangements were also made with the Poultry Marketing Centre for supply of feed as well as collection of eggs for marketing which is a major problem to some of the new entrepreneurs.

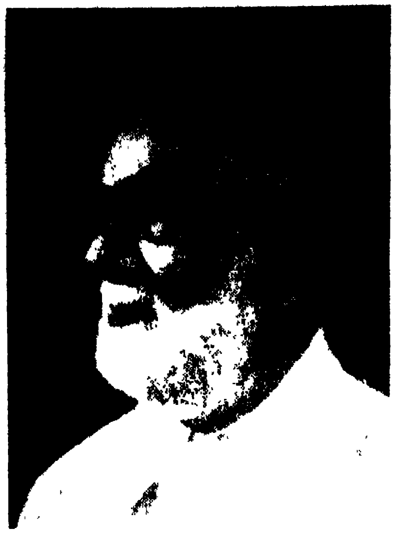
The farm labourers, fortified by the one month training, took the new challenge posed to them to run poultry on modern methods, in right earnestness. As a result the production of eggs started as per the Schedule. They have been earning a net profit of Rs 150. Most of them cleared the loans and are now trying for loans to add more birds and expand the units. Of course there are one or two average units. But most of them have succeeded in the venture. Inspired by the success the district administration have now proposed a massive poultry estate at Vetajanagalapalem to 50 unemployed rural youth. Each unit costs Rs. 20.000 and has 500 birds. Thus farm labourers of Bakkanapalem, not only turned a new leaf in their lives with their hard work and determination but also created a new story of success setting an example to others to emulate. □

A community well dug by the agricultural labourers



Schmoo : the Divine Tree

Nautamlal C. Tejpal*



Author

SCHMOO TREE has a slender straight trunk and rugged umbrella of drooping ever green leaves. It grows to a height of 65 gt. in five years in the poorest soil. The secret of its growth is the capacity of the roots to penetrate as deep as the tree's height, to suck the nutrient and water lying deep down in the soil and beyond the reach of other trees. And since the roots do not spread horizontally, other crops can be grown around it.

During the Vietnamese war an American botanist Michael Bonge saw the Vietnamese consuming the leaves and pods of the tree, locally called schmoo which means 'Divine Tree'. Heavy bombing destroyed most of the trees, but Schmoos shot up again, and saved the people and cattle from starvation. He introduced the tree in the Philippines and conducted intensive research. Realising its value, in the Philippines certain states have made a rule that unless a government servant plants and rears 20 Schmoo trees his annual increment will be stopped. With such a rule in existence, 10,000 saplings are supplied every day all the year round. This is the tree which will banish famines and floods for ever, at the same time create employment and remove pollution from the environment.

Two and a half years old Schmoo tree

Schmoo is a prolific producer of leaves, flowers, pods, buds and twigs all of which are relished by the cattle. The annual yield of dry fodder is six to ten tons per acre depending on the quality of the soil and irrigation facility. The green fodder would be three times more than the dry fodder. The leaves contain 27—34 per cent digestable proteins which increase the milk yield and weight of the cattle.

Its leaves and tender pods can be used as vegetables; its seeds can be ground and the flour used for making bread. Vietnamese use the leaves for preparing curry, or sauce and the tender pods, for making candy.

The tree is useful as fertiliser. Schmoo, harvested each year from one hectare of land contains 2500 kg of ammonium sulphate, 44 kg of phosphorus, 187 kg of potassium as well as calcium and other minerals.

Schmoo gives the highest yield of fuel wood. It can be harvested continuously for centuries for fire wood. Its heating value increases with age. A Kilo of its dry wood produces 4640 callories of heat. One Kilogram of its characoal generates 7000 calories of heat which is 70 per cent of the heat given by fuel oil. Thus the wood can be used for fuelling power houses to produce electricity. Fillipono$ have coined the name "Dendrothermal Energy" which means wood-fired thermal energy. The Philippines Government has ten years energy programme to construct 200 megawatts of wood-fired power houses, which will provide electricity and save 3.4 million barrels of fuel oil each year. Schmoo trees planted in 1000 hectares will provide continuous yield of wood for a three Megawatts plant. Each hectare yields 20 to 50 tons of wood per year. A three MW plant needs about 100 tons of wood every day.

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*President, Friends of the Trees, Rajkot

In Philippines dense schmoo plantations have yielded higher annual quantities of timber than any species yet measured. Trees grown in one hectare of land could give 20 to 40 cubic metres of timber. The wood is thin barked and light coloured. It can be made into pulp for paper and rayon industries. The wood is strong, dense and attractive and has easy machining properties It can be used to manufacture plywood. These uickly growing trees can have a diameter of 8 to 15 inches at breast hight in eight years.

Schmoo will be a varitable boon to India, since it is the fastest growing tree which gives food, fodder, fuel, fertiliser and construction timber of high quality. It will check floods and soil erosion : It conserves underground water and attracts rain. An acre of land planted with Schmoo gives an annual income of Rs. 10,000 per acre plus the income from other seasonal crops grown in the space between the trees.

Schmoo provides an efficient solution to the loss of soil fertility caused by jhumming in hill areas. Its leaves enrich the soil which can be farmed and will give bumper crops. Schmoo tree makes the best shade for plants which require shady environment. Thus the pepper, coffee, Cocoa etc. can give higher yield if Schmoo trees are raised in the plantations. They also act as live poles for the creepers of gourds, and beans.

The Bhadravati Iron Works in Karnataka was fuelled by wood. Similarly if all the waste lands around our power houses and villages are planted with schmoo, the problem of shortage of fuel can be alliviated to a very great extent. Also if all the waste lands around our villages are enriched with the Schmoo plantation, various problems like fodder for the cattle, food for human beings, shortages of high quality timber, soil erosion, sea erosion can be solved. Really schmoo can prove to be a "Kalpavariksha" to India.

Those who want to try, will be supplied with five seeds, free of cost, if they send a self-addressed unstamped envelope and one rupee (to cover the postage and cost of pamphlets) to Shri Nautamlal C. Tejpal, College Wadi, Rajkot-360001.

Rural Industrialisation - A Case Study of Rohtak District

S. K. Mehrotra*

THE GOVERNMENT OF HARYANA is determined to promote industrialisation in the state which can generate new entrepreneurship in the rural areas so that the benefits of such industrialisation percolate to the people in the rural areas. Since the introduction of Rural Industrialisation Programme in October, 1977, it has been persuading new etrepreneurs to start their tiny industrial units in rural and backward areas of the State.

Under this programme assistance is given to the tiny industrial unit set up by the bonafide residents of the State living beyond the municipal limits. The units with capital investment not exceeding Rs. 1 lakh are covered under this programme. To give a fillip to the programme, the State Government has recently waived the condition regarding the minimum qualification. i.e. matriculation, for the entrepreneurs.

For setting up a new unit an entrepreneur is required to contribute only 10 per cent of the capital cost (including 3 months working capital) of the project and he can obtain 80 per cent of the capital cost as loan from such financial institutions as H.F.C. and Commercial Banks at a subsidised rate of interest of 6 per cent per annum. A seed money Loan upto the value of 10 per cent of the capital cost can be had from State Government on an interest @ 4 per cent per annum. Apart from these facilities incentives like cash subsidies, training exemption from octroi and certain other taxes are available to the industrial units set up under this programme

Progress of the Programme in Rohtak

Since the inception of this scheme in Rohtak District, 271 units have been set up and provisional registration of 265 units was made by the end of November, 1980. Employment was provided to 1235 persons in the district by the units established under this programme. This employment figure is likely to rise by about 300 in the near future. The total financial assistance sanctioned and disbursed to these units works out to Rs. 49,86,000. These tiny industrial units in Rohtak District are producing, among others, agricultural implements, sports goods, furniture and office equipments, shoes, handloom goods, carpentry tools etc.

Problems

The implementation of the Programme is beset with a number of problems. First, there is a great dearth of literature available on facilities and incentives being provided by the Government under Rural Industrialisation Programme. Even the officials appointed for the purpose are not well-versed with details of the programme. Secondly, there is a considerable time lag between the submission of the proposal under the scheme and its disposal by the District Industries Authorities, on the one hand, and the financing agency on the other. Thirdly, the potential entrepreneurs has to face a lot of difficulty in the absence of proper arrangements for training in particular branch of knowledge. Fourthly the units established before the launching of the Rural Industrialisation programme are not economically viable because of obsolete machinery and equipment. Finally, the articles produced by these units in majority of cases are not stnadardized and cannot compete in the market.

In so far as Rural Industrialisation Programme in Haryana is concerned, Rohtak District occupies a prominent position. But there is no reason to feel complacent. There is much to be done in this regard. □

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Andhra Pradesh Agro-Corporations

Dr. P. L. Sanjeeva Reddy*

OVERWHELMING reliance of Indian economy on agriculture poses myriad multidimensional problems in our attempts at rural development. Not only half of the country's GNP is accounted by agriculture, but more than 70 per cent of manpower is also engaged in this primary sector, whereas less than 30 per cent is absorbed in secondary and tertiary sectors of industry. While many developed countries like Great Britain, the United States, Japan, and the U.S.S.R. have successfully brought down the employment of manpower in primary sector to less than one-fourth, India, during the last 50 years, has been utilizing about 73 per cent of work force in agriculture. This is a major stumbling block in optimal and profitable utilization of manpower and achievement of rural prosperity.

Since agriculture has always been a gamble with the monsoon in our country, it has not been so far a profitable proposition. Only when agriculture is considered as a business and commercialised, it would fetch alternative returns. With this end in view many new schemes and programmes were implemented to usher in 'Green Revolution', and food self-sufficiency.

The Government of India constituted Agro-Industries Corporations in all the States to help the farmer in the context of the Green Revolution with mechanised cultivation devices, spraying and other labour saving equipment. In accordance with this decision, the Andhra Pradesh State Agro-Industries Corporation Ltd., was constituted in March, 1968, to accelerate agricultural production through mechanisation and improved cultural practices. The Corporation took a new name "Andhra Pradesh State Agro-Industries Development Corporation Ltd." on 1st November, 1979, to signify its responsibility to bring about an all-round agro-industrial development by adopting modern technology, to exploit the rural agricultural potential abundantly available in the State and to assist, guide and create awareness in the farming community of the new techniques.

Objectives

The Corporation has an authorised Share-capital of Rs. 7 crores. The present paid-up capital is Rs. 540.2 lakhs. To keep with its main corporate objectives, both short-term and long-term, it has been engaged in land development, trading in agricultural machinery and implements and inputs like fertilizers, pesticides and seeds, manufacturing processing and marketing of pesticides, fruit products and agricultural implements and promotion and financing of agro-based industries in the State.

Achievements

Besides land development the Corporation was engaged in drilling for drinking water and irrigation during the last eleven years. Drilling was, however, subsequently transferred to AP State Irrigation Development Corporation Ltd., Ground Water Department and Panchayat Raj Department during 1976. In addition, it geared up its men and machinery for cyclone relief operations like closing of breached irrigation tanks, railway track and reconstruction of railway bridges in the cyclone hit Districts, which won the appreciation of the Ministry of Railways, Government of India. The total value of additional production achieved on account of this development is estimated to be over Rs. 100 crores.

The Corporation had been engaged in trading of agricultural inputs like fertilizers and pesticides since 1975. During this short period it achieved a total annual turnover of over Rs. 28 crores. The Corporation has two Pesticide Formulation Units at Khammam and Kurnool. The total value of pesticides manufactured last year was Rs. 2 crores.

Trading in tractors of different makes, tyres, tubes, batteries, spare-parts, lubricants, agricultural machinery and implements seed bins etc. is another activity of the Corporation. At important centres in the State there are 13 show rooms to cater to the needs of farmers. The iron and steel requirements of farmers also are met through its rural distribution centres opened last year.

Under the Corporation's fruit processing scheme ready-to-serve beverages under the brand name 'A-PSA' are bottled in its plant at Hyderabad and fruit products manufactured at the factory at Kodur. It intends to establish new bottling units at Visakhapatnam, Vijayawada and Anantharajupet to step up sale of beverages.

Training

The Corporation has an Agro-Service Training Wing to impart training to unemployed Engineering Graduates to help them establish their own Agro-Service Centres. The Corporation assists them in getting bank finances and procurement of machinery and equipment in addition to giving technical guidance from time to time.

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*Vice-Chairman & Managing Director. APS Agro Indus. Devp., Corpn. Ltd

Besides, the Corporation has been striving hard to secure better returns to the farmer by ensuring fuller and complete utilization of all agricultural produce and waste and by-products on a leaf-to-root concept. It is the onerous and rightful duty of the Agro-Industries Development Corporation to ensure maximum profitability of agriculture by establishing agro-based industries centred around various crops/products.

With adequate assistance from Government and financing organizations our Corporation can commit itself to identify, promote and develop agro-based and agro-input industries in the State and set out in the direction of generating employment potential and improve agricultural and industrial economy of the State.

It may be said in conclusion that agriculture and primary products generally face adverse terms of trade in relation to industrial products and inputs. With the existing infrastructure available at village level establishment of no other big industry could be thought of except the agro-based industries. Effective exploitation of raw materials, mobilization available rural capital, profitable utilization of man power not involving migration or transportation—all these become possible if agro-based industries are sarted in the rural areas. □

Rational Utilisation of Deserts

Allash Batyrov*

MODERN TECHNOLOGY will probably transform arid lands into a zone of irrigated farming and highly productive livestock hubandry. The question is, however, whether these changes will justify themselves economically and whether they are not dangerous from the ecological point of view. This problem is far too often ignored.

However, according to Soviet specialists deserts should be developed in a comprehensive way, taking into account their specific conditions. Man's interference shoud be cautious and take into account both economic and ecological factors. This will not only make it possible to preserve deserts as a natural complex but also ensure more rational use of their resources.

Deserts and semi-deserts in the USSR occupy a total area of more than 200 million hectares. Irrigated lands account for a third of overall national production of fibre crops, including all cotton, more than two-thirds of raw silk and almost one-fifth of vegetable oil.

At present most of the flow of the biggest rivers in region, the Amu Darya and the Syr Darya is consumed for the irrigation of more than seven million hectares of arid lands in Central Asia and Kazakhastan.

The study and rational use of land and water resources of the arid zone is one of the main aims of research conducted by the staff of the Institute of Deserts of the Turkmen Academy of Sciences. It should be noted here that no desert is absolutely waterless territory Arid regions receive a fair amount of water with rainfall.

Using the traditional methods of collecting water, the staff of the Institute improved the methods of storing water. Formerly water was collected in closed and open reservoirs, whereas now it is preserved in wells. Such wells are drilled to depths when underground salt water is reached. All moisture collected on the surface flows into them. Since salt water is heavier than fresh water, the latter remains above. It has been calculated that an average of 15,000 cubic metres of water can be collected during a year from an area of one square kilometre. This amount is enough to provide water for about 7,000 sheep for a year.

Deserts of Central Asia have vast reserves of underground mineral water some of which may be used for pasture irrigation. They make it possible to cultivate many food crops, including sorghum and Sudan grass.

The problem of water supply there, can be solved by using solar energy installations to vaporize salt water drilled from underground. At present Turkmen specialists are testing solar desalinators. They are still too costly but nevertheless hold much promise.

The sands round oases in Turkmenia occupy a total area of about two million hectares. Although this land was always thought to be unsuitable for cultivation, scientists now believe that it may be converted to agricultural use. An experimental plot of artificially irrigated land produces sorghum, maize, and gourds.

Deserts occupy a total area of more than 39 million hectares in Turkmenia. The staff of the Institute of Deserts have come to the conclusion that more than 12 million hectares can be used for farming. The lands along the Karakum Canal hold particularly much promise. As many as 3.5 million hectares can be irrigated there for cultivation of valuable fine-fibre cotton. At present there are about a million hectares of artificially irrigated desert lands in Turkmenia. □

Soviet Features

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*Deputy Director of the Turkmen Academy of Sciences' Institute of Deserts

BOOKS

Human Geography of Bihar

Introduction of Rural Settlements : by R. B. Mandal; Concept Publishing Company, New Delhi; 1979. pp 312. Price Rs. 90.

Human geography is a branch of geography which studies human settlements in a particular area. This branch of studies is of a comparatively recent origin. And studies in human settlements in Bihar region attempted in the book under review by the author give a fairly detailed account of the historic beginnings of such settlements and how with the passage of time they underwent changes.

Starting with the theory of nomadic exploration of land by the prehistoric man, the author has deleved deep into available sources of history to place the Aryan invasion into India, to round about 2500 B.C. The author also traces, usefully, the historical background of rural settlements. Villages bearing the names of a deity, chief of king and religion give the background of the social history of the people (p. 25). Following this method, the author says that Saran District in Bihar perhaps owed its origin to Sringi Rishi whose camp was only a few kilometres east of Chapra. He traces the origin of this settlement to around 2000 B.C. (p. 97).

On the whole the book is very useful, throwing as it does a flood of light on the ancient moorings of physical and human geography of Bihar. Supported by statistical tables and information this is a useful though pioneering study into the comparatively less known region of human geography. Much more intensive studies in other regions may be helpful to students of human settlements.

E. P. Radhakrishnan

Applied Evaluation

Fundamentals of Applied Evaluation by K. Puttaswamaiah, Oxford & IBH Publishing Co. New Delhi-110001. 1979. Pages 238. Price Rs. 48.

A LARGE NUMBER of evaluation studies have been carried out by the Programme Evaluation Organisation, State Evaluation Organisations, Universities, and the Research Institutes, but very limited thinking has been done to provide a systematic package of knowledge with regard to the concept, method and techniques of evaluation. Puttaswamaiah's efforts in this direction is worthy of appreciation. Undoubtedly, his contribution on the fundamentals of applied evaluation would be useful to all engaged in teaching, research evaluation, and appraisal of the programmes and projects. The book would be found very useful by the faculty and participants of the training programme in evaluation methodology and techniques.

The book brings out some of the conceptual and methodological issues for a sound evaluation system besides other connected problems. The alternative approaches suggested are based on the prolonged experience of the author. Thus, the Chapter on 'Conceptual Framework.' the difference between the reporting, appraisal, and evaluation are discussed in addition to the scope, methods, and techniques. Chapter two, 'Methods of Issues of Field Investigation', lays emphasis on the thoroughness of knowledge of the field of an evaluator. The evaluator has to identify the major problems and suggest remedial measures which is possible only when he possesses an analytical frame of mind. Chapter three discusses the effectiveness of the statistical techniques in an evaluation study and suggests that the interpretation of the data by the use of statistical method is an important factor in the conduct of the evaluation study. Chapter four on the sources of statistical data for evaluation, highlights the use of data available through administrative reports and surveys already conducted (like the NSS). Chapter five, 'Current Issues in Cost-Benefit Analysis', discusses the effectiveness of the cost-benefit criterion in determining the investment priorities. The calculation mainly depends upon how much to invest and when to invest. Chapter six describes other techniques in evaluation and appraisal, like programme evaluation and review techniques, critical path method, capital output ratio, input-output technique, line of balance technology, and simulation technique. In Chapter seven, some general issues in evalution are discussed. Besides others, the time factor, criterion and self-evaluation, are also analysed with special reference to the ex-ante, concurrent, and ex-post evaluation types. The last chapter on the presentation of the report, cautions an evaluator for a systematic thinking to enable him to present the facts he has collected and analysed. Written in a lucid style, the book is thought-provoking and a good grip over it may help eliminating the element of subjectivity from an evalutor to a greater extent.

—B. N. Sahay

Agriculture Technology

Small Farms Resource Use & Technology by Arun K. Mukhopadhyay & V.B.R.S. Somasekhara Rao: National Institute of Rural Development, Hyderabad. 1980: Pages 63. Price Rs. 10.

THE Small Farmers Development Agency (SFDA) has emerged as an important instrument for improvement of the lot of the weaker sections. It has also considerable significance for future agricultural development. A number of evaluation studies have been conducted both by official and non-official agencies. In spite of the weakness in the implementation of the programme, there is general agreement about the potential of the approach which SFDA symbolises. There are, however, a number of dark corners which remain to be illumined and the present study must be welcomed in that context.

The study confirms the generally accepted conclusion that the new agricultural technology based on water-seed-fertilizer package does not depend upon the size of the operational holding. However, two questions arise in this context: (i) Is the technology applicable even to tiny plots of say half an acre and below; (ii) what should be the approach where assured irrigation is not available? The first question is important because, as the authors of this study have themselves found, the impact of highly fragmented structure of holdings and their distance from the farmer's residence on the efficiency of farm operations is very significant. But the study does not seem to have made an effort to identify the size of holding below which the new technology seizes to be economic. As far as the second question is concerned, the finding should cheer the hearts of the farmers in dry farming areas. For, while small farms irrigated by wells fitted with electric or diesel engines were found to be the most efficient, un-irrigated farms could also use modern inputs and get attractive return.

An interesting finding is that the return on small unirrigated farms using modern inputs was higher than on farms irrigated by traditional irrigation. But, then, why the latter do not take to modern technology, particularly when they are fortunate in being endowed with irrigation facilities? The study does not explore this problem.

The authors discover that mechanised water supply was more efficient than water supply by traditional methods by human and bullock labour. Once again, the study does not provide an explanation for this. Given the size of holding and labour intensity of operations, it is difficult to understand why traditional water lifting should not meet the requirements as efficiently as electric or diesel engines.

Finally, the authors make recommendations based on their findings. These are well-known and unexceptionable. They include suggestions for land consolidation, a pool of common services and adequate supply of inputs and credit.

M. R. Kulkarni

Problem of Mass Unemployment

Education and the Employment Problem in Developing Countries by Mark Blaug. Macmillan, Delhi, 1980. Pages 89. Rs. 25.

THE book, originally published by the International Labour Organisation (1974), was written when the ILO launched within the framework of the World Employment Programme research programme on education and employment to elucidate education-labour market-employment links.

It discusses the immediate responsibility of the educational authorities for youth employment than for general employment, underemployment and poverty; economics of education; economic value of education; some of the solutions that have been put forward for dealing with the problem of educated employment as well as the problems of open unemployment, underemployment and poverty with more radical proposals to find a fruitful solution which are quite relevant to the Indian conditions.

Prof. Blaug set the stage for future research. He did this mainly by way of a critical analysis of and commentary on the major findings and ideas contained in the reports of four comprehensive employment strategy missions (to Colombia, Iran, Kenya and Sri Lanka) which the ILO, with the collaboration of other international agencies, had organised at that time. It is observed that little was known when the book was first published about some of the key relationships between education and employment. Since then other specialists have succeeded in casting more light on these complex inter-relationships. But many of the questions which Prof. Blaug raised in this small book have still not found a satisfactory answer, especially the precise relevance of education on the world of work.

S. K. Dhawan

Financing Agriculture

Agriculural Financing and Rural Banking in India—An Evaluation by Dr. S. Nakkairan; Rainbow Publications, Coimbatore, Tamil Nadu; Price Rs. 55; Foreign : Dollars 10.

Financing agriculture through expansion of rural banking system has assumed considerable importance since the beginning of the Plan era. More particularly, the problems of rural credit with particular reference to the short, medium and long-term credit needs of agriculture in rural areas became a matter of utmost concern to the Reserve Bank of India as evidenced by the appointment of several Expert Committees in the fifties and sixties. The rural credit survey of 1951-52, the Rural Debt and Investment Survey of 1961-62 and the All India Rural Credit Review Committee of 1969—all these have examined the problems of rural credit in general and agricultural finance in particular over the last three decades. Based on the recommendations of these Committees a number of policy measures were incorporated in the various Five Year Plans mainly to strengthen the cooperative credit institutions in the rural areas and also for taking up promotional measures to increase the membership of these institutions, assessment of their credit requirements etc. The Nationalisation of the 14 commercial Banks in July, 1969 was another land-mark in the sphere of rural banking and financing agriculture on top-priority basis.

The book under review has drawn heavily from the various committee reports mentioned earlier as also the report of the Banking Commission. The two parts of the book namely 'agricultural financing' and 'rural banking in India' (divided into 31 chapters) are closely inter-linked because of which some overlapping in the treatment of the subject was unavoidable. The problems of branch banking and financing agriculture, the role of the traditional money-lender in the rural society, strength and the weakness of the cooperative institutions, problem of over-dues and a host of other related aspects have been exhaustively dealt with in these two parts. A comprehensive treatment of rural credit in the form of this book is a timely addition to the literature on this subject both to the students in the post-Graduate classes seeking specialisation on the subject as well as the banking circles. Although a number of publications have been utilised in writing this book, these are not properly acknowledged. Besides, a bibliography would have facilitated those interested in further research on this subject. There are numerous errors throughout the book justifying an errata.

H. P. N. Murthy

Indian Engineering Trade Fair 1981

Gopesh N. Mehra*

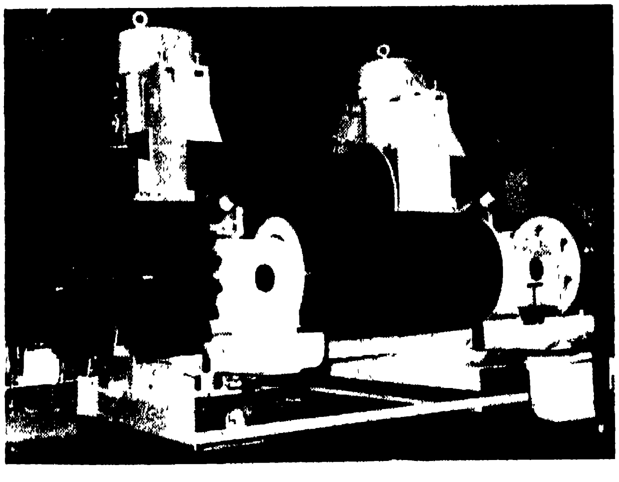
INTERNATIONAL trade fairs have been recognised the world over as forums to fill the yawning communication gap that exists in the world about trading and economic opportunities between one nation and the other. The fourth Indian Engineering Trade Fair which was inaugurated at the sprawling Pragati Maidan on February 2 last came at the opportune time of the Non-aligned Foreign Ministers' Conference. A large number of trade and business delegations timed their visit to this country to coincide with the non-aligned conference in their desire to explore the growing Indian market not only for sophisticated high technology transfers which India has been seeking so avidly but also to explore avenues of setting up joint ventures in India and third world countries with the help of a highly advanced Indian technology and skilled manpower which cut across the growing competition in world markets for consumer labour-intensive goods

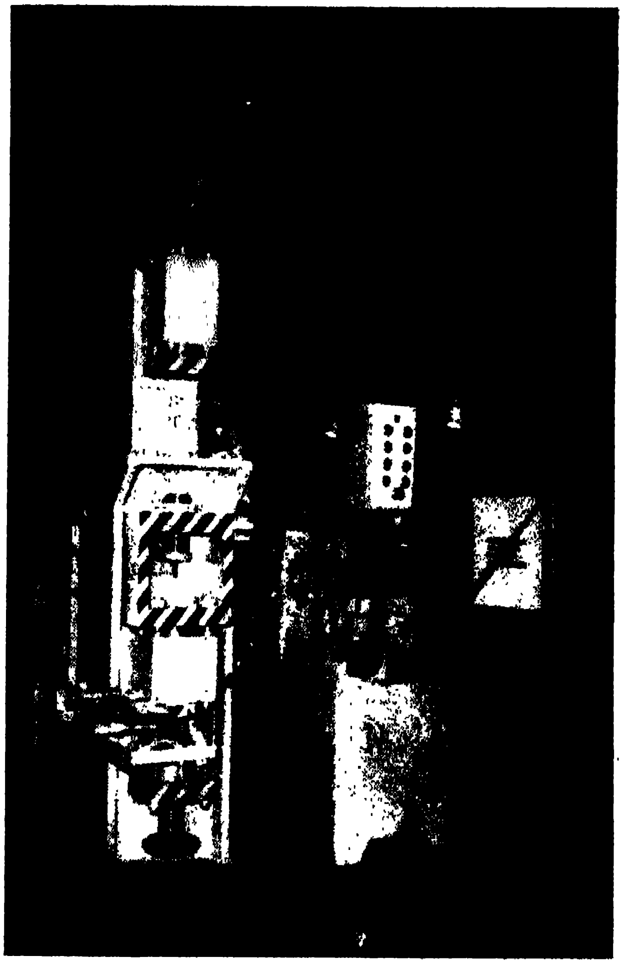
The success which the Fair was expected to achieve was visible in the first week itself when various participants recorded a total value of business enquiries worth Rs. 195 crores out of which overseas business under negotiation aggregated Rs. 46.9 crores and total orders already booked for various high-precision Indian engineering products was Rs. 1.49 crores. In the total value of business generated the automotive sector alone accounted for enquiries worth Rs. 90.9 crores heavy mechanical sector for Rs. 45.7 crores and industrial machinery for Rs. 27.3 crores.

The Fair was organised by the Association of Indian Engineering Industries (AIEI) which purports to be the second largest organisation representing industrial and trading interests in the country besides the Federation of Indian Chamber of Commerce and Industry (FICCI).

The Fair this year was significant in as much as overseas visitors from 40 countries including delegations from Kuwait, Canada, Belgium, Malaysia etc. visited the Fair and showed keen interest in wide range of engineering goods displayed by the AIEI constituents. Negotiations by some of these delegations have already started in the fields of mini-cement plants, rolling mill equipment, machine tools, jute mill machinery, packaging machinery, diesel fuel injection pumps, heat exchangers and pressure vessles, hydraulic presses, welding equipment, diesel engines, traction motors, castings, switch gears and transformers. Besides the display items the AIEI has been really original, as its President Shri Man Mohan Singh put it, in organising a number of workshops and conferences in the shape of Industry Days for technical and commercial discussions in select sectors of industry. Apart from highlighting the advantages of problems of these sectors, these group meetings contributed to exchange of knowledge, technology ideas and other related information for the benefit of group members as well as outside participants.

An engineering exhibit





In the first week itself various participants recorded a total value of business enquiries worth Rs. 195 crores.

Among other things a visit to the IETF 81 provided one the opportunity to identify sources of supply of a large range of consumer and capital goods, specially labour-intensive products. It helped in identifying sources of supply of items being manufactured by Indian industries but being 'vacated' by developed nations. It also helped to locate Indian partners as sub-contractors for third world country projects, product supply and consultancy services.

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*Industrial Correspondent, UNI.

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The Fair also provided a first-hand information on Indian Government's policies and procedures with regard to joint ventures, industrial cooperation and trade besides giving information on Indian market situation in respect of exports to India and information on opportunities available in foreign countries.

Mr. Vinod L. Doshi, Chairman of the AIEI Trade Fair Committee said the Fair 81 sought to make a total projection of the engineering industry and over the years it has become the largest exposition of Indian Engineering Industry in one place.

Among the principal delegations visiting the Fair, Iran gave considerable importance to it and sent several officials and delegations, among them one led by the Iranian Minister of Industry and Mines, H. E. Mohammed Reza Nematzadesh. He was accompanied by 20 members of the Iran Development and Renovation Organisation and the National Iranian Organisation for Industry. The timing of the Iranian delegation's visit was significant since only recently the AIEI had signed an agreement for cooperation with the IRDO and NIOI.

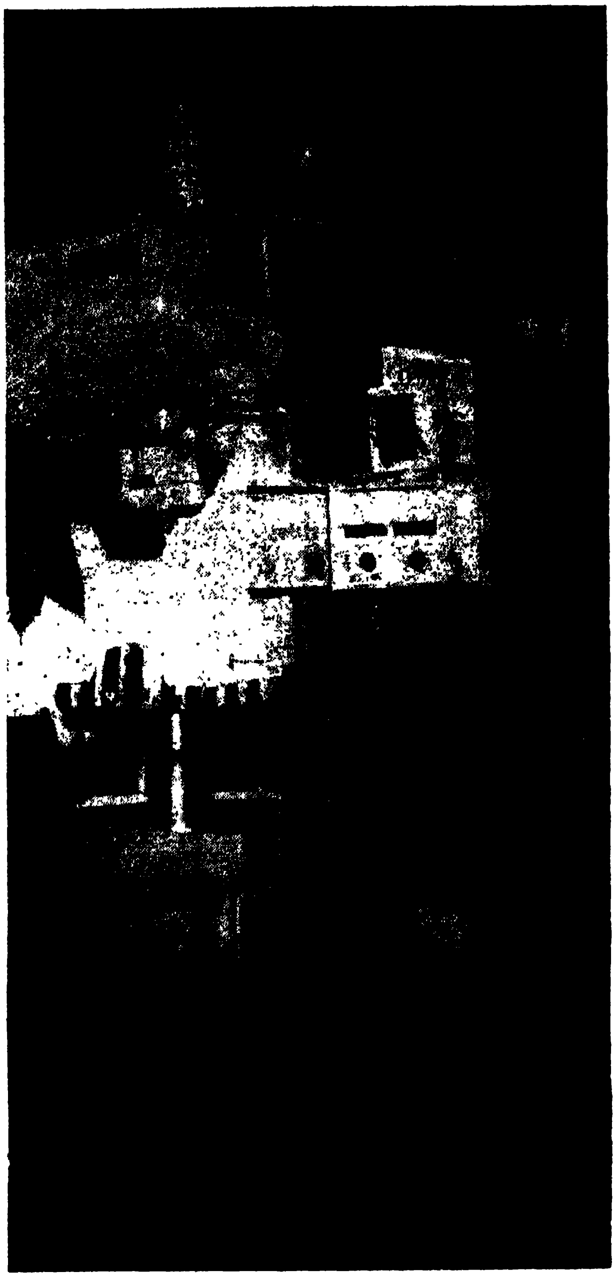
New Products

Another interesting feature of the Trade Fair was the number of new products on display for the first time. These products/equipment have been developed after extensive inhouse research and development. It was claimed by the participants that some of the innovations are of an inventive nature. There were other products displayed which aimed at import substitution and led to saving of valuable foreign exchange.

The metal Box Company displayed an Irrigation pump, a product of basic research in the field of alternative energy—any source of heat—which can discharge upto 3000 gallons per hour. It could be activated by agricultural wastes, biogas, or any source of heat and therefore could be extensively used in agriculture.

Another product does strip packaging on a continuous motion cartoner for use by pharmaceutical industry. It automatically counts, collates and feeds the strips into continuous motion cartoners and can also handle blister packs and bearings. The complete cartoning system comprises a tube filling machinery automatically linked to continuous motion cartoner.

Delegations from over 40 countries visited the fair



A number of new products were on display

There were single colour offset printing machinery which had automatic devices ideally suited for ink transfer and perfect sheet separation and has wide speed variation.

Another product, a MVK-10 silk screen printing machine suitable for printing various surfaces, rigid and flexible both—had infinitely varying speed and can print on glass, metal and plastics.

Another novel product was a solar cells panel which can be operated by solar energy and by lamp illumination also. It was used as a source of power in commercial electronic gadgets.

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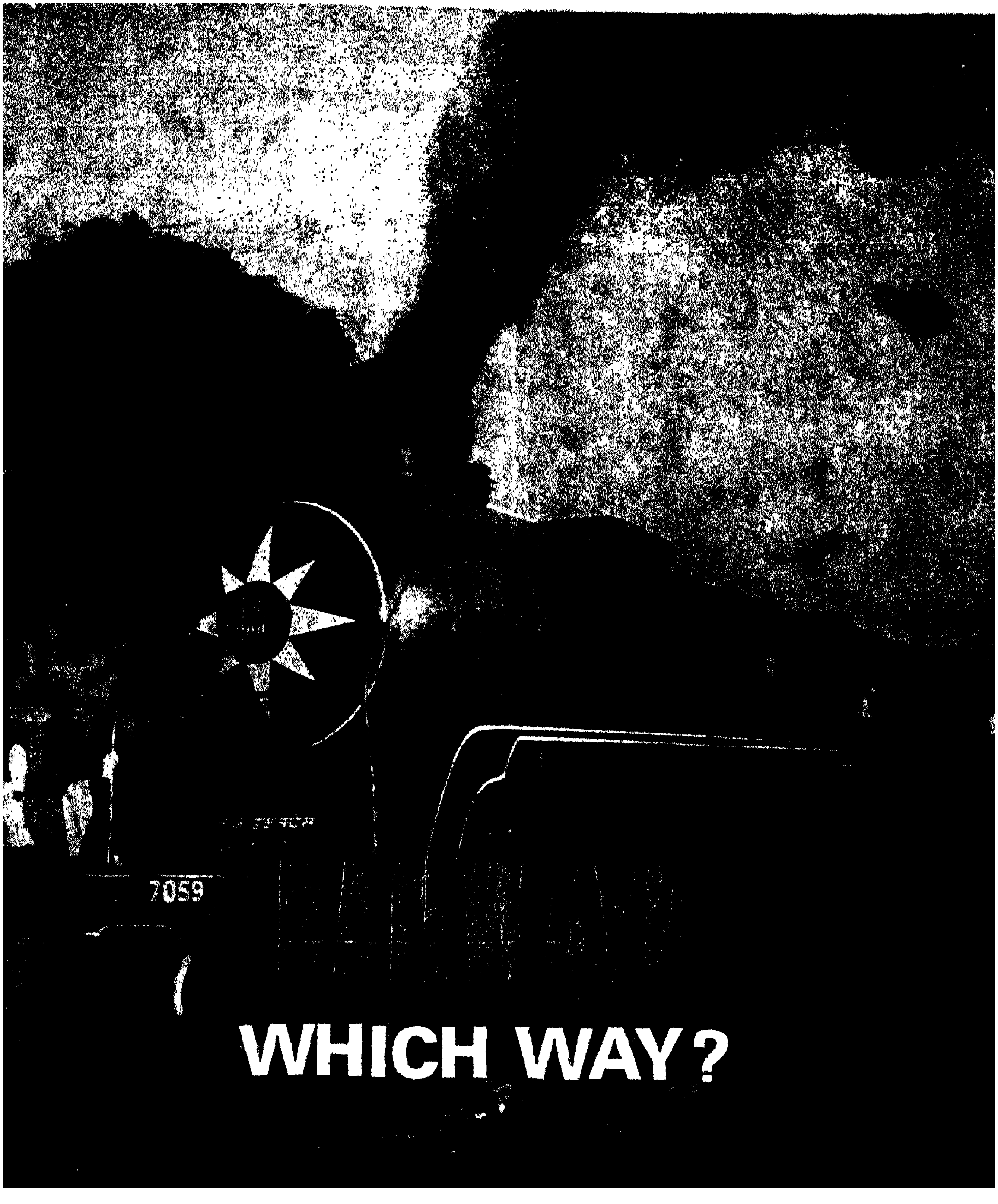

WHICH WAY?

The Disabled are not Job-Handicapped

Kamla Mankekar

AS A MEDICAL WORKER put it, the physically handicapped are not job-handicapped. Given the training, majority of them can come up well in acquiring skills and discipline and in productivity. According to a study conducted some years ago, it is the negative attitude of the employers which keep the handicapped out of productive activity.

There are two opinions on the education and training of handicapped. Some feel they all need special care. Others believe that it is necessary only for the severely handicapped. The others should be given a liberal training in basic skills and education to enable them to function in a variety of situations. They can later specialise like any other career seeker.

It is believed that about 35 per cent of the orthopaedically handicapped do not need special appliances to lead a fairly normal life. What they need is proper training to utilise whatever their faculties. Two thirds of them can operate in normal jobs with aids. Only a small percentage need to be engaged in sheltered workshops. But before getting on the job, they need to be familiarised with equipment; helped to overcome architectural hinderances at their place of work, and adjustments made, if necessary, in the level of sitting, the arrangements of tools, etc. Once they are settled, they should be treated as any other worker: no pity, no special treatment. They should be encouraged to earn recognition. Then alone would they develop self-confidence and pride in their abilities.

There are a variety of jobs which the disabled can handle with skill and ease. A blind person can be engaged in packing, parcel-making, book binding, assembly of tools, or as teacher, musician, bill collector and telephone operator. The deaf can handle practically any job involving manual skill. In fact they have greater concentration and make excellent workers for light engineering industries, precision instruments, radio repairs, electrical industry, or as tailors, carpenters and watch repairers.

A major need of the handicapped is adequate education and training facilities. There are about 40 million handicapped persons in India. As per figures available there are just 126 schools for the blind, 99 for the deaf, 53 for mentally retarded and 41 for the orthopaedically disabled in the entire country. Seventy per cent of the disabled live in villages where none of these facilities is available. Some job opportunities are provided for them by the Khadi and Village Industries Board. These include oil crushing, paper making, pottery, manufacture of gums, resins, Katha, etc. But these jobs are few and poorly paid and are available in certain states only.

In engaging new hands, employers consider the productive capacity of a worker. It should be realised that what is lost in a limb can be made up by diligence. For that to happen, the handicapped need training opportunity and confidence. They would not only function, well but might excel their co-workers.

(United Nations)

A disabled person manning, a Public Call Office (PCO) in New Delhi

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Yojana seeks to carry the message of the Plan but is not restricted to expressing the official point of view.

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Editorial

Aids to Development

FOLLOWING the finalisation of the Sixth Five Year Plan, the Government has presented to the Parliament three important documents—namely, the Economic Survey, the Railway Budget and the General Budget—which have a bearing on the Annual Plan as well as on the current economy.

The Economic Survey narrates how the negative growth of 1979-80 has not only been got over but has been changed into a positive growth rate of 6.5 per cent in 1980-81. It hopes that the planned growth rate of 5.2 per cent can be achieved in the new year if the existing productive capacity is fully utilised and if the infrastructure performance continues to improve. The survey also cautions the country about the persisting inflation, the difficult balance of payments position and the possibility of only moderate agricultural growth in the new financial year.

The Railway Budget contains increases in the fare and freight charges to the tune of about Rs. 353 crores, after taking into account the subsequent concessions announced by the Railway Minister. The neglect of railway development in the past one decade or so, the possibility of only 'rehabilitation' and not growth in the entire Sixth Plan period and the steady improvement in the past few months under the new railway high command have been candidly portrayed in the budget documents.

The General Budget contains tax reliefs and concessions to the extent of Rs. 146 crores and fresh taxation proposals for Rs. 271 crores. It leaves an uncovered deficit of Rs. 1539 crores. It provides about 20 per cent more than last year for the 1981-82 Annual Plan, with priority for the development of the infrastructure and modern growth-industries.

These documents give us a sense of cautious optimism about the future. The better performance in the past few months of the infrastructure items of the economy, the improvement in the working of many public sector undertakings, the resumption of planned development and the government's watchfulness in maintaining the tempo of improvement, liberal Budget concessions in direct taxes, the non-raising of excise duties for revenue purposes, incentives to save, invest and produce, and fillip to exports, are positive factors in this respect. The two basic changes in the fiscal policy, which were suggested by the Planning Commission and accepted by the Government—namely, not resorting to heavy taxation for mobilising additional resources and making the public sector stand on its own legs and not on budgetary underwriting—are particularly welcome. On the negative side, the biggest factor is inflation. The 40 per cent inflation in the last two years has corroded the real income of the people. The recent increase in the administered prices of petroleum products, cement, coal and steel and the new across-the- board additions to railway surcharges which, according to some estimates, add up to about Rs. 2200 crores—may further increase the prices. Black money which is still very strong and seriously distorting the supply side of the economy, can be effectively curbed only by stronger steps than the bearer bond scheme. It is also to be noted that the reduction of subsidies is proportionately less and the provision of deficit financing is more than what have been recommended in the Sixth Plan. With the

(Contd. on page 24)

The Railway Budget : Impact on Revenue and Development

Satish Jha*

THE RAILWAY BUDGET for 1981-82 has once again projected its traditional and routine manner loud and clear insofar as its approach to the financial system of the railways is concerned. In perhaps the largest revenue-generating drive ever, the expectation of the railways' well-wishers that in the face of Railway Tariff Enquiry Committee's recommendation some steps may be taken to restructure the railways' finances and save them from falling into a state of sickness has been belied. While their contribution towards depreciation is likely to rise by only Rs. 100 crores, the amount to be generated through new fares and freight tariffs are expected to siphon off Rs. 350 crores into the railways' coffer. And this is likely to generate a surplus of only Rs. 11.82 crores.

TABLE I

Table showing adjusted value of certain indicators

Year	Age of Capital (Years)	Current value of total investments (gross block) (Rs. crores)	Value of depreciation corresponding to current value of total investments (Rs crores)	Adjusted Gross Profits (Rs crores)	Ratio of adjusted gross profits to current value of investment (%)	Adjusted depreciation as a projection of the original depreciation
1974-75	16	19444	600.8	(—)400.3	(—)2.1	4.7
1975-76	16	20311	597.1	(—)322.1	(—)1.6	4.7
1976-77	16	19782	648.8	(—)203.8	(—)1.0	4.4
1977-78	16	23230	752.7	(—)244.3	(—)1.0	4.8
1978-79 . . .	17	23691	774.1	(—)350.7	(—)1.5	4.8
1979-80	17	25230	822.5	(—)395.2	(—)1.6	3.7
1980-81 . . .	17	27352	908.11	(—)416.1	(—)1.5	3.8

All this points towards their inefficiency that has been on the increase over the years. The revised estimate for 1980-81 shows a deficit of Rs. 52 crores, about Rs. 10 crores more than anticipated, despite the fact that the movement of passengers and goods was considerably below the target. Although the railways moved 19.5 million tonnes i.e., 10 per cent less goods than anticipated—the shortfall in revenue was only 1.5 per cent below the target. This by itself implies an increase in the haulage of goods and in past this trend of moving the goods over a longer distance than in the sixties has been very clear. But in 1980-81 this lead was much above (roughly 19 per cent) the targeted lead during the Sixth Five Year Plan.

A smaller deficit in the wake of a much worse performance in physical terms points towards two things—their inefficiency and, given the present level of functioning, the adequacy of their freight charges and fares. This is not to argue that there should not be any rise in transportation charges of the railways when there is two-digit inflation all around and the fares in even the competing road transport sector are rising, but to point towards the fact that if they have to raise the charges it should be for improving their health by making capital investment, replacing obsolete equipments, etc.

It is this obsolence of railway equipments that has led to the inefficiency of the railways and this must be recognised by the government. The Rail Tariff Enquiry Committee (RTEC) did emphasize on this aspect by conclusively showing that there has been a decline in the depreciation provision of the railways over the years and this does not compare well even with the railways in other developed countries. However, instead of suggesting a rate at which the depreciation should be provided for, the committee suggested constitution of an expert committee to go into this question. But the government has taken no such step in this direction.

Surprisingly this has been the case when they do not have to pay towards interest charges on capital, most of which is lent to them from the general exchequer of the government. Instead they pay dividends to the general revenues which has been only around 5 per cent in recent years, well below the interest rates at which the banks lend to the industrial houses, which is normally over 11 per cent.

Need for Scientific Method

Apart from the above drawbacks the railway budgets have lacked in imagination regarding generation of revenues as well. Even in the current budget this lack of imagination is amply manifested. Once again the rise in fares has been most pronounced in the case of first and AC class. This is likely to encourage the shift of passengers from upper classes to lower. It may be mentioned here that such a shift of passengers' relative preference for lower classes has been going on for quite some time now. Even in the current year's budget the shortfall in our earnings from upper classes was about 10 per cent of the target compared to 3 per cent shortfall in case of traffic receipts from lower classes. The reasons are obvious. Many people who could have travelled by upper classes travelled lower and this has been borne out by the facts presented by the railways in regard to the number of passengers travelling by various classes. Once again, this is not to argue that fares in upper classes should not increase, but to see that if revenue maximisation is an objective a more scientific approach in calculating fares should be adopted.

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*Asstt. Editor, the Financial Express.

Similarly in the case of freight traffic, while a marginal or even a little higher rise in freight charges of the commodities with high per unit value and particularly of rising prices could go unnoticed as the final impact of an increase would be much less felt, a similar rise in the low rated traffic would result in a further shift to roadways for short leads. Similarly in the case of goods with high incidence of excise duties a little higher increase would have a relatively smaller impact. In particular the case of petroleum and its products may be cited. It accounts for about 12 per cent of their freight traffic revenues. Excise duty on these being about 300 per cent, a higher rise in its freight rates would have a neglible impact on the final consumer.

Erosion of Capital

While on the one hand the railways have not adopted a discriminating policy in raising the fares and freight rates, on the other, the utilisation of the revenue generated has not been planned according to their pressing priorities. This has been the case over the years and has resulted in steady erosion of their capital base. The principal reason for this has been the inadequacy of the depreciation provision. This has happened due to two reasons. One, that while allocating depreciation funds the railways do not take into consideration their total investments, which is total of all the investments made in the railways from all the sources. Instead they take capital-at-charge, which is the investment financed from the general revenues of the government, as the basis for calculating depreciation. The capital-at-charge being a little less than 80 per cent of their total investments, the allocation to depreciation reserve funds, if the rate of depreciation is adequate, at best would cover the capital financed from the general revenues. Secondly, the conventional practices in India does not allow for depreciation at the current replacement cost of the capital assets. Since the whole purpose of the depreciation fund is to provide for the replacement of old or obsolete assets, failure to take into account their rising replacement costs implies a progressively larger underestimation of the real costs of machinery and a corresponding inflation of the supposed profits or surpluses.

Thus, if a calculation is made on the current replacement value of capital assets the railways seem to have been incurring losses since 1970-71 and the proportion of the losses to the total investments has been steadily growing. In other words, by not depreciating their capital adequately the railways have been subsidising other sectors of the economy and at their own expense.

Below an attempt has been made to adjust the accounts of the railways to reflect the current replacement cost of capital assets and, therefore, the amount that should have been set aside in the depreciation funds The adjusted gross and net profits have also been calculated in the light of their depreciation needs.

TABLE 2

(Rupees in Crores)

Year	Book Value of		Book value of		Adjusted Book Value of		Adjusted Book Value of	
	Gross Surplus	Net Surplus	Depreciation	Dividend to general revenue	depreciation(*)	Dividend to general revenue(*)	gross surplus	Net Surplus
1974-75	73.6	(—)113.8	126.9	137.5	628.6	777.8	(—)427.5	(-)1205.3
1975-76	137.0	(—)61.6	128.0	198.1	656.1	812.4	(—)391.1	(—)1203.5
1976-77	296.3	(+)87.8	148.8	209.1	639.0	791.3	(—)193.9	(—)985.2
1977-78	352.8	(+)126.2	155.6	226.6	756.3	929.2	(—)241.9	(—)1171.1
1978-79	260.8	(+)36.7	162.6	224.2	765.2	947.6	(—)341.8	(—)1289.4
1979-80	227.3	(—)66.2	219.6	293.5	814.9	1009.2	(—)368.4	(—)781.9
1980-81	272.0	(—)52.3	242.1	324.4	883.5	1094.1	(—)369.4	(—)822.0

(*) Calculation based on the average ratios prevailing during 1963-64 to 1965-66

Thus adjusted accounts of the railways show that during the past seven years the real losses of the railways have ranged between Rs. 800 crores and Rs. 1300 crores annually. Though the past two years have shown an improvement over the earlier five years, the losses are still sizeable. It is also clear that, despite the increased depreciation provision for the last year, the ratio of adjusted depreciation to the actual depreciation has risen over the previous year pointing to a further erosion in their capital base. Certainly an increased depreciation provision for the year 1981-82 is an improvement over past, the proportion of depreciation to gross traffic revenue will still be lower than that prevailed till the early sixties.

In light of the above, while there is an urgent need to adopt a more scientific approach to the problem of revenue generation, the use of the revenue thus generated also needs a proper gearing. The recent rise in railway accidents is not something which has come to surface overnight. Underneath this lies the increasing obsolescence of the railways' capital assets. If there has been some improvement in some parts of their rolling stock, the tracks are old and need an early renewal.

Each time there is a hike in railway fares and freight charges the promises of a better tomorrow are also offered. But the better tomorrows have been very elusive. It is time the railways and the government took a more dispassionate view of the problem instead of trying to manage in the short run and keep moving from one crisis phase to the other. ☐

Budget for Growth with Stability and Social Justice

THE Budget for 1981-82 presented to Parliament on February 28 by the Union Finance Minister Shri R. Venkataraman provides for speedier economic growth, concessions to industry—especially small-industry. export promotion, incentives to savings and investment, immense relief to salaried middle class and increased welfare measures for the weaker sections. For the first time the Budget has not increased excise duties for the purpose of raising revenue. Highlights of the Budget proposals are given below :

Exemption limit for personal income tax raised from Rs. 12,000 to Rs. 15,000 (This concession will free about 14 lakh persons from paying income tax). Nil rate slab raised from Rs. 8,000 to Rs. 15,000. Income tax rate restructured upto Rs. 30,000. The rate will be 30 per cent on the slab of Rs. 15,000 to Rs. 25,000 and 34 per cent on the slab of Rs. 25,001 to Rs. 30,000. No change on the higher slabs. Standard deduction for all salaried tax payers enhanced from 10 to 20 per cent subject to a ceiling of Rs. 5000 as against the present Rs. 3500. This benefit applicable to pensioners also.

Compulsory deposit scheme for income tax payers extended for two more years from April 1. 1981.

Surcharge on income tax payable by all companies reduced from 7.5 per cent to 2.5 per cent.

Fourteen groups of industries will become eligible for income tax concessions. They include electric fans, pressure cookers, glass and glassware. pigments, colours, paints enamels, varnishes, cellulose lacquers, porcelain ware and synthetic detergents.

Tax concessions for oil exploration and for industries using renewable (non-oil) energy devices.

Complete tax holiday for export-oriented industries set up in free trade zones for an initial period of five years.

Tax concessions for tea plantations and electronic industry.

Tax concessions for small industries with value of plant and machinery upto Rs. 20 lakhs, instead of the present Rs. 10 lakhs. Deduction permitted for medical treatment of physically and mentally handicapped dependents raised. Braille watches and Braille paper used in books for the blind completely exempted from excise duty. Also concession on customs duty on articles used by the handicapped.

Exemption limit for estate duty raised from the present Rs. 50,000 to Rs. 1.5 lakhs. One residential house or part thereof will be valued for estate duty on the same basis as for wealth tax.

Concessions in personal taxation will result in a loss of Rs. 145 crores in a full year and Rs. 115 crores during 1981-82. The Union government's loss will be Rs. 29 crores.

Increase in auxiliary duties of customs on most of the imports to yield an additional revenue of Rs. 250 crores. A 15 per cent import duty on newsprint to yield Rs. 21 crores. Increase of custom duty on stainless steel bars and wire rods to yield Rs. 5 crores.

Additional excise duty of 10 to 15 per cent on certain taxtiles raised. This is not for revenue but for meeting the increased subsidy for controlled cloth.

Excise duty on matches readjusted to encourage cottage units.

Excise duty concessions to small manufacturers with an investment of Rs. 20 lakhs instead of Rs. 10 lakhs as at present

Excise duty concession to woollen fabrics produced on handlooms.

Concessions and reliefs in excise and customs duties will reduce revenue by Rs. 9.35 crores. Taxation proposals will yield Rs. 35.57 crores in a full year by way of excise duties and Rs. 285 crores by way of customs duties. Thus the next additional revenue under these heads will be Rs. 311.22 crores.

An increase of 10 paise on every local telephone call has been made. Trunk call charges will also go up. The deposit for a new telephone connection will also be increased. These measures may yield Rs. 35.78 crores in a full year.

Interest rates on bank deposits above 3 years will be increased to 10 per cent, rates for less terms also correspondingly increased. A new six-year savings certificate with 12 per cent return will be introduced. The interest rate on debentures will go up by 1.5 per cent.

Current year's deficit is estimated to be Rs. 1974 crores as against the original estimate of Rs. 1445 crores. New year's uncoverted deficit may be Rs. 1539 crores.

The Annual Plan outlay has been stepped up by 20 per cent. Agriculture, especially expansion of irrigation, is given top priority in the Annual Plan. Special stress has also been given on the programmes for the weaker sections.

The Integrated Rural Development programme will help three million families to go above the poverty line in 1981-82. Priority has also been given to oil, coal and power. Minerals, transport, communications, chemicals and fertilisers also get much higher allocation in the Plan.

25 new Regional Rural Banks will be established.

A National Bank for Agricultural and Rural Development will be established as an apex institution to meet the credit needs of the rural community.

Defence expenditure in 1981-82 will be Rs. 4200 crores as against Rs. 3800 crores for the current year.

The Life Insurance Corporation will be reorganised into five independent units with a coordinating body, so as to make the LIC more dynamic and better managed.

The Finance Minister said that the budget marks a transition from 'crisis management' to full-fledged growth next year. He also pointed out that inflation had yet to be overcome and that was why he opted for fiscal prudence.

Regarding black money, he said that government has taken a major initiative in the form of Special Bearer Bonds and that further action on a wide front would be necessary to check the generation of black money.

The Finance Minister said that the budget is a package containing many incentives for higher production, increased utilisation of capacity and for savings. He appealed to the people to supplement the efforts of the government's economic policy through their hard work, discipline and innate good sense so that the country can move forward in the path of growth with stability and social justice.

Budget At A Glance

	1980-81 Revised Estimates (Rupees in Crores)	1981-82 Budget Estimates (Rupees in Crores)	Deficit
Revenue receipts	12,894	14,327	—
Revenue disbursements	13,682	15,299	—
Deficit	—	—	927
Capital receipts	7,939	9,005	—
Capital disbursements	9,126	9,572	—
Total receipts	20,833	23,061	—
Total disbursements	22,808	24,871	—
Overall deficit	—	—	1,810
Less effect of budget proposals	—	—	(-)271
Net overall deficit	—	—	1,539

(An expert analysis of the Budget's impact on current economy and economic development will be published in our next issue—Editor)

Yojana in Urdu

The tenth language edition of 'Yojana' in Urdu will be published from April this year.

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Towards a Brighter Future

Indira Gandhi*

"The day will dawn. Hold thy faith firm." —Tagore

PROGRESS in a country of India's size and diversity depends on the participation and full involvement of all sections of the people. This is possible only in democracy. But for democracy to have meaning in our circumstances, it must be supported by socialism which promises economic justice and secularism which gives social equality. This is the frame for our planning.

The Planning Commission is to be congratulated on the manner in which it has worked practically round the clock to bring out the Sixth Plan in a year as we had promised to do. The drawing up of this plan posed special difficulties. We faced a plan gap and a budget gap at a time when the whole world, and India more than other countries, was hard hit by inflation, the continuing rise in the price of petroleum when the price of our raw materials remains static, as well as other political and economic tensions and international confrontations.

In view of the severe financial constrictions and the political expectations, it is not surprising that the plan should be unsatisfactory to many. However, this is no reason to denigrate it. Planning is more than the putting together of a number of Central and State Government projects, it is a direction. And this the Sixth Plan provides. Once the nation is clear about the path to be followed, the details can be adjusted as we go along.

30 Years of Planning

Let us cast a backward glance. In the last thirty years, through our Plans we have built the foundations of a modern, self-reliant economy. We have achieved self-sufficiency in food, diversified our industrial structure and made significant progress in science and technology. The continuity of the planning process, with its thrusts and checks, has helped us to create and renew national assets and to take up programmes for the amelioration of the weakest strata and the uplift of the most backward regions. Economic growth must be balanced, it must ensure self-reliance, stability and social justice. All sections should be assured that there will be no discrimination. No society can prosper if merit is not given its due.

A developing nation must marshal its scarce resources for a concerted effort to build its capital base in various sectors of the economy to enhance production capabilities and allow larger savings. Increased output and a balanced inter-sectoral allocation of the incremental savings promote further development. So the process goes on.

The progress so far achieved has been steady and substantial, although somewhat slower than envisaged. The very process of development generates new expectations and makes fresh demands on resources. Our goal of self-reliance was bound to strain our external resources. Also, we were not allowed to concentrate undisturbed on our development endeavour, for there have been frequennt challenges to national security. Another factor adding to the complication of our development is the continuous increase in population, primarily owing to the very success of our programmes of public health and epidemic control, as a result of which infant mortality has decreased dramatically and life expectancy risen.

We have resolutely stood up to each new challange. We have come to a stage where we can confidently assert that development has contributed to strengthening our nation in spite of its regional, linguistic, social and communal diversities. It has consolidated our democracy and is guiding our society towards socialism. We can now speak of an India in which the fruits of growth will reach to the last. This is a stage when the planning process assumes even greater importance.

Priorities

Five Year Plans are formulated in the perspective of long-term development. This enables us to raise the national effort to match specific goals and meet critical challenges. Annual Plans give operational meaning to the exercise. Monitoring, review and evalution procedures help to keep the vessel on the course. The voyage has been longer and rougher than we had imagined, but there is little doubt about the rightness of the course we have charted.

The Sixth Plan envisages a significant augmentation in the rate of growth of the economy with an annual growth rate of over 5 per cent. In this five-year period we expect to see progressive reduction in the incidence of poverty and unemployment and also in regional inequalities. Greater emphasis has been laid on the speedy development of indigenous sources of energy and infrastructrual sectors of coal, energy, irrigation and transport. High priority has been given to agriculture and rural development and allied agricultural activities like ainmal husbandry, dairying, fisheries and also the forestry sector, with accent on development and conservation. Substantial outlays have been allocated for expansion in core sectors and also for cottage, village and small industries as well as for programmes to provide minimum needs.

The measure of a plan is not intention but achievement, not allocation, but benefit. We are determined to implement this Plan with steadfastness of purpose. Democratic planning means the harnessing of the people's power and their fullest participation. We sail on stormy seas. But the Indian people have weathered many storms. Their spirit is indomitable and it will prevail. Let us help them to bend their energies with unity and discipline in the great endeavour to reach towards a brighter future. □

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*Prime Minister's Preface to the Sixth Five Year Plan document.

Objectives and Strategy

OVER the past 30 years of planned economic development considerable progress has been made in the economy towards the basic objectives of growth, modernisation, self-reliance and social justice ; there has also been a diversification of the economic structure. These achievements constitute a positive national asset for launching a more direct attack on poverty and underdevelopment in the Sixth Five Year Plan (1980—85). The task is enormous and made all the more difficult by the sharp deterioration in the external environment.

The removal of poverty is the foremost objective of the Sixth Plan even though it is recognised that, given the magnitude of the task, it cannot be accomplished in a short period of five years. Inevitably, the pace of movement towards the long-term objectives of removal of poverty and the achievement of self-reliance and the nature of priorities in the immediate period ahead, are influenced by the current economic situation and the constraints operating in the economic system. It should be recognised that the Sixth Plan is being launched under difficult conditions. These include the acute inflationary pressures which have prevailed since March, 1979, a set-back in the functioning of such critical sectors as power, coal, railways and steel in the years immediately preceeding the launching of the Sixth Plan and the steep rise in the price of petroleum products resulting in an increasing deterioration in the nation's terms of trade and the balance of payments.

It is in the light of these considerations that the objectives of the Sixth Plan have been formulated. These are given below. Along with the objectives are also listed major areas of effort which will be required to fulfil these objectives :

- (i) a significant step-up in the rate of growth of the economy, the promotion of efficiency in the use of resources and improved productivity ;
- (ii) strengthening the impulses of modernisation for the achievement of economic and technological self-reliance.
- (iii) a progressive reduction in the incidence of poverty and unemployment :
- (iv) a speedy development of indigenous sources of energy, with proper emphasis on conservation of and efficiency in energy use ;
- (v) improving the quality of life of the people in general with special reference to the economically and socially handicapped population, through a minimum needs programme whose coverage is so designed as to ensure that all parts of the country attain within a prescribed period nationally accepted standards ;
- (vi) strengthening the redistributive bias of public policies and services in favour of the poor, contributing to a reduction in inequalities of income and wealth ;
- (vii) a progressive reduction in regional inequalities in the pace of development and in the diffusion of technological benefits ;
- (viii) promoting policies for controlling the growth of population through voluntary acceptance of the small family norm ;
- (ix) bringing about harmony between the short and the long term goals of development by promoting the protection and improvement of ecological and environmental assets ; and
- (x) promoting the active involvement of all sections of the people in the process of development through appropriate education, communication and institutional strategies.

The strategy adopted for the Sixth Plan consists essentially in moving simultaneously to strengthen the infra-structure for both agriculture and industry so as to create conditions for an accelerated growth in investments, output and exports, and to provide through special programmes designed for the purpose, increased opportunities for employment specially in the rural areas and the unorganised sector and meet the minimum basic needs of the people. Stress is laid on dealing with inter-related problems through a systems approach rather than in separate compartments ; on greater managerial efficiency and intensive monitoring in all sectors schemes of development at the local level and in securing their speedy and effective implementation. The attack on the problem of poverty is most effective only in the conditions of an expanding economy. Since growth by itself may now, however, suffice, other programmes and policies will need to be adopted with the specific aim of improving the living conditions of the masses and to bring about a reduction in inequalities of income and wealth. The scheme of the Sixth Plan outlays thus provides for specific allocations for such programmes.

The Sixth Plan envisages a total investment (gross capital formation) of Rs. 1,58,710 crores over the plan period 1980—85 at 1979-80 prices. This is to be financed by domestic saving of Rs. 1,49,647 crores estimated at 1979-80 prices during the Sixth Plan and net inflow of funds from abroad to the extent of Rs. 9063 crores. Thus, nearly 94.3 per cent of the total investment is to be financed from domestic resources.

The total investment has been projected to grow from Rs. 23,618 crores in 1979-80 to Rs. 36,797 crores in 1984-85. At the same time, the GDP at market prices has been projected to increase from Rs. 108,546 crores to Rs. 146,540 crores during the same period. Thus, the investment (as per cent of GDP at market prices) is expected to rise from 21.8 per cent in 1979-80 to 25.1 per cent in 1984-85.

Domestic saving has been projected to grow from Rs. 23,055 crores in 1979-80 to Rs. 35,870 crores in 1984-85. As per cent of the GDP at market prices, the saving rate is envisaged to increase from 21.2 per cent in 1979-80 to 24.5 per cent in 1984-85, implying a marginal rate of saving of the order of 33.7 per cent over the plan period 1980--85.

The total plan investment for the period 1980—85 is estimated at Rs. 158,710 crores. Of this Rs. 84,000 crores (53 per cent) is estimated to be in the public sector and the balance of Rs. 74,710 crores (47 per cent) in the private sector.

Long-Term Perspective

The Sixth Plan has been formulated against the background of a perspective, covering a period of 15 years from 1980-81 to 1994-95. This development perspective visualises accelerated progress towards the removal of poverty, generation of gainful employment and technological and economic self-reliance. The principal indicators for the preferred alternative are shown in the following Table :

Selected Economic And Social Indicators

Sl.No.	Item	1979-80	1984-85	1994-95
1.	Gross Domestic Product (Rs. crores at 1979-80 prices)	97051	125050 (5.2)	213600 (5.5)
2.	Saving as per cent of GDP at market prices	21.24	24.48	27.52
3.	Investment as per cent of GDP at market prices	21.76	25.11	26.92
4.	Population (Millions)	654.1	717.2 (1.86)	843.0 (1.63)
5.	Per capita GDP (Rs.)	1484	1744 (3.28)	2534 (3.81)
6.	Per capita monthly Consumption (Rs.)	95.62	109.67 (2.79)	151.98 (3.32)
7.	Percentage of people below poverty line	48.44	30.00	8.74
8.	Employment (Million standard person years)	151	185	248
9.	Monthly per capita consumption of foodgrains (Kg.)	12.95	14.32 (2.03)	15.50 (0.80)
10.	Monthly per capita consumption of sugar (kgs.)	0.68	0.79 (3.00)	1.15 (3.82)
11.	Monthly per capita consumption of clothing. (meters)	0.85	0.92 (1.60)	1.41 (4.36)
12.	Monthly per capita consumption of Electricity (KWH)	14.27 ..	22.19 (9.23)	39.05 (5.81)
13.	Value added in education per capita (Rs.)	20.32 ..	24.72 (4.00)	36.60 (4.00)
14.	Life Expectancy (years)	M 52.6 F 51.6	55.1 53.4	60.1 59.8

Note : Figures in brackets represent annual compound growth rates.

Growth Rate

The Sixth Plan aims at a growth in gross domestic product of 5.2 per cent a year and in per capita income of 3.3 per cent per annum. Thus by 1984-85 per capital income is expected to reach Rs. 1744 at 1979-80 prices as compared with Rs. 1488 in the base year. The broad sectoral growth rates can be seen from Table below :

Sectoral Composition of Gross Value Added—1979-80 and 1984-85

(per cent)

S. No.	Sector	1979-80	1984-85
1.	Agriculture	35.13	32.90
2.	Mining and Manufacturing	19.59	21.22
(a)	Mining	1.52	2.01
(b)	Manufacturing	18.07	19.21
(i)	Food Products	1.77	1.70
(ii)	Textiles	3.11	2.88
(iii)	Wood and Paper Products	1.02	1.03
(iv)	Leather and Rubber Products	0.50	0.52
(v)	Chemical Products	2.55	3.09
(vi)	Coal and Petroleum Products	0.45	0.49
(vii)	Non-Metallic Mineral Products	1.05	1.05
(vii)	Basic Metals	1.26	1.49
(ix)	Metal Products	0.96	1.10
(x)	Non-electrical Engineering Products	1.38	1.66
(xi)	Electrical Engineering Products	0.60	0.71
(xii)	Transport Equipment	1.02	1.23
(xiii)	Miscellaneous Industries	2.40	2.26
3.	Electricity	1.71	1.88
4.	Construction	5.07	5.05
5.	Transport	4.89	4.95
6.	Services	33.61	34.00
	TOTAL	100.00	100.00

Between 1950-51 and 1978-79 the underlying trend rate of growth of national income was 3.5 per cent, of agricultural production 2.7 per cent and industrial production 6.1 per cent. In per capita terms, income has grown at a trend rate of 1.3 per cent, which after allowing for the rising share of investment in national income, has meant a modest 1.1 per cent annum rise in per capita consumption.

Thus the realisation of the growth targets of the Sixth Plan will involve a significant acceleration of the pace of development both in agriculture and industry. An effective implementation of the Plan will require a significant increase in investment rate from 21.8 per cent of GDP at market prices in 1979-80 to 25.1 per cent in 1984-85. Correspondingly, the domestic savings rate will have to go up from 21.2 per cent of G.D.P. in 1979-80 to 24.5 per cent in 1984-85. In addition, vigorous efforts will be necessary to secure a significant improvement in the utilisation of the existing assets both in agriculture and industry. To this end, the Plan lays great emphasis on fuller utilisation of the existing irrigation potential as well as on improved functioning of infrastructure consisting of power, coal and transport. The plan lays particular attention to the investment needs of these sectors so that the future growth of the economy is not hampered by shortages of critical inputs.

Poverty and Employment

The economic development during the last three decades has enabled a perceptible increase in average per capita income from Rs. 466 in 1950-51 to Rs. 730 in 1978-79, both at 1970-71 prices. In spite of this increase, the incidence of poverty in the country is still very high. Thus determined measures are necessary to combat poverty. A substantial increase in the overall rate of growth of the economy will no doubt create favourable conditions for a reduction in poverty and unemployment. However, in the light of past experience, it will not be realistic to rely solely on the growth process to find a solution to this problem.

It has been observed that nearly 50 per cent of our population has been living below the poverty line continuously over a long period.

Percentage of people below poverty line

S. No.	Area	1972-73	1977-78
1.	Rural .	54 09	50.82
2.	Urban .	41 22	38 19
3.	All India	51.49	48 13

The majority of the poor live in the rural areas and belong to the categories of landless labourers, small and marginal farmers, rural artisans including fishermen, and backward classes and backward tribes. These people have either no assets or assets with very low productivity, few relevant skills and no regular full-time jobs or very low paid jobs.

Assuming the distribution of consumption of 1977-78 remaining unchanged, the poverty percentage will be reduced from 48.44 per cent in the base year 1979-80 to 38.93 per cent in 1984-85. But the public sector outlay in the Sixth Plan provides for many poverty alleviation programmes which operate mainly by way of transferring assets and skills and by providing employment in the slack seasons of the year. If all these programmes are implemented effectively, the distribution of consumer expenditure in 1984-85 is not expected to be the same as in the year 1977-78. A rough calculation of the new distribution and the number of people below the poverty line in 1984-85 can be made by going into programme details.

Consumption Expenditure*, 1979-80

Sl. No.	Population Group	Average monthly per capita consumption (Rupees at 1979-80 prices)			No. of people (in million)		
		Rural	Urban	Total	Rural	Urban	Total
1.	Bottom decile	32 11	41 38	34 12	51 20	14 21	65.41
2.	Below poverty line**	51.27	59.75	52.80	259 56 (50 70)	57 28 (40 31)	316.84 (48.44)
3	Total population	87.97	123.16	95.62	512.20	142 10	654.10

*With same consumption distribution as in 1977-78.
**Figures in brackets are percentages of people below the poverty line.

Consumption Expenditure* in 1984-85

(With redistribution)

Sl. No.	Population Group	Average montly per capita consumption (Rupees at 1979-80 prices)			No. of people (in million)		
		Rural	Urban	Total	Rural	Urban	Total
1.	People below poverty line**	60 31	64 09	61 17	166.02 (30.0)	49 14 (30 0)	125.16 (30.0)
2.	Total population	101.55	137.10	109.67	553.4	163.8	717.2

*After redistribution of income in Rural and Urban Areas.
*Figures in bracket are percentage of people below poverty line.

The total number of households to be covered by IRDP during the Plan period is nearly 3,000 families per block. There are altogether 5,000 blocks in the country. This means that the programme intends to cover nearly 75 million people i.e. more than 13 per cent of the rural population. The total investment outlay set aside for this purpose is Rs. 1,500 crores over the Sixth Plan period supplemented by Rs. 3,000 crores from institutional finance. The target group for this purpose is located in the poorest of the rural population. The detailed estimates of income generation from this transfer of assets show that an income of Rs. 3,000 crores per annum will be generated out of this transfer. This implicity means a capital-output ratio of 1.5. By making an independent study of the consumption distribution in the rural sectors of the economy it is found that this amount of income transfer will bring nearly 11 per cent of the rural population (61 million in 1984-85) above the poverty line covering about 12 million households in the rural sector, which will almost satisfy the Plan target. Besides, a provision for moving nearly 6.1 million of the poor in the urban sector above the poverty line has been made in the Plan in terms of providing additional consumption benefits to these people mainly through public redistributive services like health, education and sanitation, housing and drinking water, and urban slum improvement programmes. Consumption expenditure in 1984-85 for the people below poverty line with redistribution of income as stipulated above would be as in Table below:

Nearly 75 per cent of the farming population operate between them only a quarter of the cultivated area. Since wage employment from all sources may not make up the deficiency in their consumption, it would be essential as a poverty alleviation programme to implement a limited measure of land redistribution. A redistribution of 5 per cent of the cultivated area from holdings above 5 acres to small farmers and agricultural labour households will have the effect of increasing income accruing to this class by about 20 per cent. In addition, a sizeable amount is expected to be transferred by NREP, which by providing jobs during the slack season, will further help in bringing these families above the poverty line.

Employment

In the field of employment the picture has been far from satisfactory. The number of people unemployed and underemployed have risen significantly over the last decade. In the above context therefore our employment policy should cover two major goals :

(1) Reducing underemployment by increasing the rate of growth of the gainfully employed and

(2) **reducing unemployment on the basis of usual status, commonly known as open unemployment.**

Estimated Sectoral Employment : 1979-80 and 1984-85

(Million standard person years)

Sl. No.	Sector	1979-80	1984-85
1.	Agriculture	72.184	85.237
2.	Forestry & Logging	6.207	7.794
3.	Fishing	1.940	2.220
4.	Mining and Quarrying	0.724	0.894
5.	Manufacturing	22.012	27.759
6.	Construction	9 286	11.321
7.	Electricity, Gas and Water Supply	0.723	0.927
8.	Railways	1.662	1.704
9.	Other Transport	7.109	8.677
10.	Communication	0.800	0.917
11.	Trade, Storage Warehouses	13.278	16.640
12.	Banking Insurance	1.038	1.225
13.	Real Estate and Ownership of Dwellings	0.028	0 032
14.	Public Administration, Defence and other services	14.119	16.042
15.	Special programmes for Employment Generation, including National Rural Employment Programme	..	4.000
	TOTAL	151.110	185 389

The major employment generation activities are to be found in agriculture, rural development, village and small scale industries, construction, public administration and other services. The employment generation capacity of a sector is derived by studying its past employment performance against its growth.

The estimates of increase in employment are given in the Table. These estimates take into account the specific employment generation programmes in the Plan like NREP, IRDP, etc. in addition to the choice of investment and output mix of the economy. The growth of employment in the construction sector will be higher than the one presented in the Table as part of the employment generation shown against special programmes, is expected to take place in construction activities.

The present estimates show that employment on the basis of standard person years will grow at 4.17 per cent per annum in the Sixth Plan period i.e., at a rate much higher than the growth of labour force of 2.54 per cent per annum over the same period. In terms of absolute numbers, it means an increase in employment in standard person years by 34 million which will almost match the increase in the labour force defined as persons of fifteen years age and above, over the same period. The result can be interpreted thus : if all new employment is on ful-time basis, then the total jobs created will accommodate the entire increase in the labour force. However, assuming that in reality all the newly employed cannot be on a full-time basis, there will be a greater absorption and the existing backlog of unemployment will be reduced. ☐

The Real Value of a Tree

THE value of services rendered by a 50-year-old tree is Rs. 15.7 lakhs, according to estimates worked out by scientists.

The contribution of the tree is estimated as follows : production of oxygen Rs. 2.5 lakhs; control of air pollution Rs. 5 lakhs; control of soil erosion and soil fertility Rs. 2.5 lakhs; recycling of water and control of humidity Rs. 3 lakhs; bird and animal shelter Rs. 2.5 lakhs and protein conversion Rs. 20,000.

The contribution in terms of prices of timber, fruits and flowers have not been computed in the estimates.

This was revealed by Prof. T. M. Das, of the Agriculture University, Calcutta, during his presidential address on "plants and pollution" at the Indian Science Congress in Varanasi recently.

Prof. Das said trees generally survived for 100 to 200 years and a life span of 400 to 500 years was not uncommon.

Red wood trees remained alive for 2,000 to 3,000 years. The study has taken only 50 years of service into computation exempting all capital expenditure, but taking only running the costs of artificial arrangements which are to be used in lieu of a tree, he said.

A medium size tree at current market rate would hardly fetch on an average more than Rs. 5,000 which was only 0.3 per cent of its real value. More often it was simply destroyed for a nominal price.

He regretted that utter ignorance coupled with influx of population has made people choose short-term benefits.

The total amount of oxygen produced by a 50-tonne medium size tree was at least one tonne in a year (depending on the species and climatic condition).

The present market price of this amount of oxygen was Rs. 5,000 (at the rate of Rs. 5 a kg.) If the tree was to live for 50 years the total value of its oxygen production would amount to Rs. 2.5 lakhs. ☐

Gist of Sixth Plan—Part II

Financial Outlay and Resources

THE Sixth Five Year Plan provides for a total outlay in the public sector of Rs. 97,500 crores at 1979-80 prices. This includes current outlay, i.e., outlay mainly for the maintenance of services created during the Plan period and which does not create assets, of Rs. 13,500 crores. Thus, the public sector investment outlay in the Plan will be Rs. 84,000 crores.

In comparison with the Fifth Five Year Plan (1974—79), the outlay for the Sixth Plan represents an increase of 148 per cent in nominal terms. Even after allowing for the rise in the price level in the intervening period, the increase comes to more than 80 per cent.

Of the total outlay of Rs. 97,500 crores, Rs. 47,250 crores is in the Central Sector and the balance of Rs. 50,250 crores is in the States and Union Territories. The share of the latter in the total, works out to 51.54 per cent*.

A considerable part of the investment in the Sixth Plan will be for on-going projects; many of these will generate output during or towards the end of the plan period. It is necessary to provide for the completion of such projects. Similarly, a part of the investment in the Sixth Plan, especially on projects with relatively long gestation, will generate output in the period beyond the Sixth Plan.

Financial Resources

The aggregate resources for the Sixth Five Year Plan 1980—85, are placed at Rs. 1,72,210 crores, consisting of an investment of Rs. 1,58,710 crores and current development outlay in the public sector of Rs. 13,500 crores. The investment outlay is to be financed through domestic saving of Rs 1,49,647 crores and net inflow of funds from abroad to the extent of Rs. 9,063 crores.

Estimates of Gross Domestic Saving, Investment and Aggregate Resorces : 1980-85

(Rs. crores at 1979-80 prices)

Sl. No.	Item	Amount
1.	**Public Saving**	34200
2.	**Private Saving**	115447
3.	**Aggregate Domestic Saving**	149647
4.	**Net inflow from abroad**	9063
5.	**Total Saving available for gross investment**	158710
6.	**Current Development outlay in the public sector**	13500
7.	**Aggregate Resoces**	172210

Of the total domestic saving of Rs. 1,49,647 crores, public saving, comprising savings of Government, public sector non-financial enterprises (including departmental enterprises) and public sector financial enterprises has been estimated at Rs. 34,200 crores. The balance of Rs. 1,15,447 crores is accounted for by private saving comprising corporate, cooperative and house-hold saving.

Gross Domestic Saving by Sector of origin : 1980-81

Sl. No.	Sector	Amount (Rs. crores)	Percentage to total
1.	Public Saving	34200	22.9
	(i) Government	13430	9.0
	(ii) Public enterprises non-financial	18245	12.2
	(iii) Public enterprises financial	2525	1.7
2.	**Private Saving**	**115447**	**77.1**
	(i) Household sector	104859	70.1
	(ii) Corporate sector	9053	6.0
	(iii) Cooperative sector	1535	1.0
3.	**Total Domestic Saving**	**149647**	**100.0**

Public saving accounts for 22.9 per cent of the total domestic saving estimated for the Plan period. while the balance of 77.1 per cent represents savings generated in the private sector. Within the private sector, household saving dominates with a share of as much as 70.1 per cent of the total domestic saving.

Estimates of Private Saving : 1980-85

S. No.	Sector	Rs. crores
1.	Household sector	**104859**
	(i) Financial Assets (Net)	49731
	(ii) Physical Assets.	55128
2.	Private Corporate Sector	**9053**
	(i) Financial enterpirses	183
	(ii) Non-financial enterprises	8870
3.	Cooperative sector	**1535**
	(i) Financial institutions	910
	(ii) Non-financial institutions	625
4.	Total private Saving	**115447**

An aggregate outlay of Rs. 1,72,210 crores is envisaged for the Sixth Five Year Plan. Of this the public sector outlay has been estimated at Rs. 97,500 crores while the balance of Rs. 74,710 crores would be in the private sector. The public sector outlay of Rs. 97,500 crores provides for investment outlay of Rs. 84,000 crores and current development outlay of Rs. 13,500 crores over the Plan period. However, the public sector's own saving available for investment (excluding the saving of public sector financial institutions) has been estimated at only Rs. 31,675 crores. In order to finance an investment outlay of Rs 84,000 crores, it will be necessary for the public sector to draw upon domestic saving of other sectors

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***Tables containing Public Sector outlays, outlays of States and Union Territories and Estimates of Financial Resources have been published in 'Yojana' dated March 1, 1981.**

to the extent of Rs. 41,396 crores and foreign saving (including a drawal on foreign exchange resources) of the order of Rs. 10,929 crores.

Private saving, including the saving of the public financial institutions, has been estimated at Rs. 1,17,972 crores. After transferring Rs. 41,396 crores to the public sector, the resources available with the private sector for investment would be Rs. 76,576 crores. Further the net outgo of the private sector to the rest of the world is estimated at Rs. 1,866 crores. Thus the investment of the private sector over the Plan period is estimated at Rs 74,710 crores. The estimates of saving and investment along with the inter-sectoral transfers are given in Table below.

Financing of the Aggregate Outlay : 1980-85

(Rs. crores at 1979-80 prices)

Sl No.	Sector	Own Saving	Transfers from Domestic		Rest of the world	Investment	Current outlay	Aggregate Outlay
			Public Sector	Private Sector				
	1	2	3	4	5	6	7	8
1.	Public	34200	(—)2525	(+)41396	10929	84000	13500	97500
2.	Private	115447	(+)2525	(—)41396	(—)1866	74710	..	74710
3.	Total	149747	..	..	9063	158710	13500	172210

The above estimates of investment imply that the share of public sector investment in total investment would be nearly 53 per cent over the Sixth Plan period, 1980—85 as compared to the estimated share of around 45 per cent during the Fifth Plan period 1974—79.

Additional Resource Mobilisation

In the Framework of the Sixth Plan considered by the NDC in August, 1980, it was indicated that of the additional resource mobilisation target of Rs. 19,150 crores, the Centre would raise Rs. 13,150 crores and States Rs. 6,000 crores. In the detailed discussions with the States, a number of States agreed to mobilise larger resources to the extent of over Rs. 3,000 crores to finance their development plans. Thus additional resource mobilisation of Rs. 21,302 crores has been envisaged during the Sixth Plan period—Rs. 12,290 crores at the Centre and Rs. 9,012 crores by the States. The enormity of task involved in raising the resources of this order cannot be under-rated and a number of hard decisions would be necessary for this purpose. Utmost emphasis will have to be laid on the maintenance of firm fiscal discipline. However, considering both past trends and the potential that still exists, it is by no means an unrealistic target. The broad lines along which the additional resources could be mobilised are discussed below.

The traditional mechanism for mobilising additional resources has been to rely on additional taxation. As a result of progressive increase in the tax rates in the past, the ratio of tax revenue to the country's national income has not reached the level of 20 per cent. The scope for raising additional revenues, therefore, through mere changes in tax rates is rather limited. On the other hand, there is considerable scope for reducing tax evasion, rationalising tax laws, streamlining tax administration and widening the tax base in the urban sector and tapping the surpluses of the affluent section of the farming community. Even then, greater reliance will have to be placed on the reduction in subsidies and substantial improvement in the financial return on investment in the public sector undertakings, both of the Centre and the States, through appropriate measures.

Of additional resource mobilisation target of Rs. 12,290 crores by Centre, Rs. 5,140 crores are expected to be contributed by taxation, Rs. 3,250 crores by reduction in subsidies and Rs. 3,900 crores from internal resources of public sector enterprises. The additional tax measures announced in the Central budget 1980-81 are estimated to yield additional revenue to the extent of about Rs. 2,030 crores over the Plan period, leaving a balance of Rs. 3,110 crores to be raised during the rest of the Plan period.

Subsidies

There has been a very steep rise in Central subsidies in recent years. The burden on the central exchequer on account of subsidies on food, fertiliser, export and other items has risen from Rs. 470 crores in 1975-76 to about 1,860 crores in 1979-80. It is estimated that at 1979-80 rates, these subsidies would account for Rs. 12,400 crores over the Sixth Plan period. It is essential to ensure that these subsidies are kept within reasonable limits in order to release resources for development. In respect of food subsidies, while increase in procurement prices may have to be allowed in future in order to provide incentives to the farmers as well as to offset the rise in the cost of inputs, measures would have to be taken simultaneously for the appropriate revision of issue prices of foodgrains and for the reduction in the operational costs of the Food Corporation of India and other agencies. Similarly, if cost of imported fertilisers goes up, the fertiliser prices may have to be raised so that fertiliser subsidy is maintained at the 1980-81 level. It is also not possible to expand the scope of export subsidies and other measures needed to be employed to promote exports.

Public Sector Losses

The Coal India is incurring losses and such losses are estimated at Rs. 500 crores during the Plan period. It will be necessary to eliminate these losses completely through suitable adjustment in prices and other measures. The Railways. Posts & Telegraphs and other public enterprises will have to adopt suitable policy measures in order to achieve a reasonable rate of return on their investment. The estimates and financial resources for the Plan take credit of additional internal resources to be raised by Railways and P&T to the extent of Rs. 1,200 crores and Rs. 200 crores respectively during the Plan period The resource mobilisation effort made by Railways and P&T in 1980-81 will generate additional resources to the tune of Rs. 562 crores in the Plan period leaving a balance of Rs. 838 crores for 1981—85 period. At present a number of Central enterprises are either incurring losses or are not yielding adequate return on the investment made. The estimates of contribution of public sector enterprises of the Centre indicated earlier are based on a rate of return of about 8 per cent during the Plan period. It would be necessary, however, to improve the rate of return of investment of these enterprises so as to earn at least 10 per cent by the end of plan period through suitable measures—i.e., improved operational efficiency, better inventory management control, improvement in managerial capability and appropriate changes in price policy, wherever necessary. On this basis, credit has been taken for additional contribution of these enterprises other than Railways and P&T during the Plan period at Rs. 1,000 crores. At present the domestic crude oil is under-priced and a moderate adjustment could yield a substantial revenue over the plan period.

The States have agreed to the additional resource mobilisation target of Rs. 9,012 crores during the plan period. A part of this will, no doubt, have to be contributed through appropriate adjustments in tax rates and better collection. Innovative methods, including decentralisation of powers and involvement of local community in mobilising additional resources, will have to be adopted to tap a part of the surpluses generated in agriculture.

The commercial losses of the State Electricity Boards, which amounted to Rs. 103 crores in 1973-74 increased to Rs. 440 crores in 1979-80. The cumulative losses of State Electricity Boards during the 1980—85 period are estimated at Rs 4,400 crores. In view of the massive investment envisaged in the power sector during the Sixth Plan period, it will be necessary to take effective steps to reduce substantially the losses of the State Electricity Boards. In a number of States, action has already been initiated on these lines. If 80 per cent of these losses are wiped out, additional resources to the extent of Rs. 3,500 crores would become available for financing the State plans.

The performance of State Road Transport Corporations in most of the States is far from satisfactory. The aggregate losses during 1979-80 were Rs. 62.35 crores and have been estimated at Rs. 1,340 crores during 1980—85 period at 1979-80 rates. The poor performance of these Corporations is partly due to a rise in the cost of fuel and other materials in recent years. Effective measures including appropriate adjustments in the fares are called for to improve the return on investment made by the State Road Transport Corporations. Bus fares have already been raised in a number of States which is estimated to yield Rs. 825 crores over the Plan period and other States have agreed to take similar action to wipe out these losses so as to bring additional revenues to the extent of Rs. 1,378 crores over the Plan period.

The State Governments are incurring huge losses on irrigation works. This in effect, amounts to a subsidy to the farmers who benefit from irrigation facilities created by the Government. It is necessary to reduce progressively and, over a period of time, eliminate these losses through suitable revision of the existing rates. The minimum objective should be to set rates at levels such as to cover the working expenses on the existing irrigation works during the Plan period. This would bring additional resources to the tune of Rs. 325 crores over the Plan period.

Resources from Abroad

The estimate of net inflow from rest of the world is derived on the basis of the projections of balance of payments.

The net inflow of external resources to the public sector plan has been taken at Rs 9929 crores as under:—

	(Rs. crores)
Net Aid . . .	5889
Other inflow from abroad	4040
Total .	9929

The assumed order of net inflow of foreign resources of Rs. 9,929 crores constitutes about 10.2 per cent of the total public sector Plan outlay.

Foreign Exchange reserves at the end of 1979-80 stood at Rs. 5,164 crores, excluding gold and SDRs. It is proposed to draw down these reserves to the extent of Rs. 1,000 crores during the Plan period.

Balance of Payments

Indian economy has by and large faced a difficult balance of payments situation right from the First Plan. With very few exceptions, India has had a negative balance of trade throughout the last thirty years. The difficulties of the balance of payment front, therefore, are not new for the Indian economy. However, on present reckoning, the balance of payments problems facing the country during the Sixth Plan are likely to be acute and will require innovative approaches to cope with the situation.

Table below gives the estimates of India's Balance of Trade for 1979-80 and the projected picture for 1984-85. The trade deficit in the base year of the Plan, namely 1979-80, has been estimated at Rs. 2,370 crores which is higher than ever before. It was, nevertheless, possible to manage the situation because of the substantial net inflows on account of invisibles which included inward remittances from abroad, particularly from Indians working abroad, and the earnings on account of tourism, transportation, insurance, etc. It is estimated that the trade deficit by the end of the Sixth Plan will increase to about Rs. 3,972 crores, the major increase being on account of the expected increase in the import bill in respect of petroleum and petroleum products. Aggregate imports are estimated to increase from Rs. 8,790 crores in 1979-80 to Rs. 13,850 crores in 1984-85 at 1979-80 prices, inclusive of contingency imports.

Balance of trade : 1979-80 *and* 1984-85

(Rs. crores at 1979-80 prices)

	1979-80	1984-85
1. Exports .	6420	9878
2. Imports	8790	13850
(of which contingency imports) .	..	(1000)
3. Balance of Trade . . .	(—)2370	(—)3972

India's exports are projected to increase from Rs. 6,420 crores in 1979-80 to Rs. 9,878 crores by the end of the Sixth Plan. This represents a compound annual growth in export volume of about 9 per cent and it is consistent with Sixth Plan objective of an annual increase of 5.2 per cent in the gross domestic product.

Table below shows the projections of all major items of balance of payments at constant prices. Despite a substantial growth in exports and net inflow of external aid of Rs. 5889 crores, there would still be a gap in the balance of payments. This is proposed to be met partly from our own foreign exchange reserves, which will be allowed to be drawn down to the extent of Rs. 1000 crores and partly from additional capital inflows from abroad including borrowings from commercial sources.

Balance of Payments Projections *Total for* 1980-85

Account	Rs. crores at 1979-80 prices
A. *Current Account*	
1. Exports	41078
2. Imports (of which contingency imports)	58851 (4911)
3. Balance of Trade	(-)17773
4. Invisibles	8710
6 Current Account (Net)	(-)9063
5. *Capital Account*	
1. Net Aid	5889
2. Other borrowings including commercial borrowings, and other capital inflows.	5087
3. Drawal on foreign exchange reserves Total 1 to 3	1000 11976*
4. Depletion of resources due to terms of trade deterioration	(-)2913
5. Net inflow	9063

*Of this total the resources available for financing public sector outlays will be Rs. 10,929 crores.

The task of policy during the coming years would be to contain the balance of payments gap within the limits projected and this will require a massive effort to realise the assumed export growth of 9 per cent in volume terms, to contain the growth of imports to 7.9 per cent (excluding contingency imports) per annum to continue to attract remittances from abroad and promote the earnings from tourism and other sources of foreign exchange. At the same time, the utmost economy will need to be exercised in the outgo of foreign exchange for non-essential purposes.

The trade and balance of payments projections which have been incorporated in the Sixth Five Year Plan calculations require that both import substitution and encouragement of exports will have to be pursued vigorously through the adoption of efficient policy instruments and innovations made in the pattern of financing.

The investment allocations made in the Plan assume a considerable degree of import substitution in a number of industries, namely steel, cement, fertilisers, crude oil and capital equipment of all kinds, including the science-intensive areas such as electronics. However, it will be counter productive to pursue a policy of indiscriminate import substitution. The emphasis has to be on efficient import substitution which improves our balance of payments as well as national income. In order to ensure that the export effort is sustained and the country's competitive ability improved, it will be necessary to bring about a re-orientation in the economy from producing wholly for the domestic market to producing both for earning foreign exchange for the country and at the same time benefiting the domestic economy through reduction of costs and improvement of quality. What this means is that export production should be profitable. In view of the resource constraints, it would be necessary to keep down to the minimum export assistance provided for the budget; nevertheless, with all the improvement which can be made in the regime of import restrictions, price policy and the like, it might still be necessary to provide some support from the budget in ensuring that the export effort is not adversely affected. It is also important to ensure that institutional arrangements for export credit and for financing of foreign trade are strengthened and priority attention is given to the provision of export finance on reasonable terms. A decision to establish an export-import Bank has already been taken by the Government.

With respect of invisibles, we should continue to adopt the incentives provided for directing inward remittances in the light of changing circumstances. It will be necessary to encourage investments from persons of Indian origin resident abroad into remunerative areas and also to improve the quality of service provided in the handling of remittances There is a scope for promoting tourist earnings and consistent with the other objectives of the Plan investment allocations have been made for this sector. There is also scope for expanding earnings from other services, such as shipping, insurance and banking and the task of policy will be to keep alive to the opportunities as they are presented and to permit a quick and flexible response to make use of them.

The international environment in which we have to function is undergoing a considerable change. While foreign assistance on a concessional basis can be expected to continue at around the present level and may even increase somewhat, it is not a source solely on the basis of which we can confidently plan our investments. In the past few years, there has been a rapid increase in the re-cycling of funds through the international banking mechanism and several developing countries have made use of international capital markets for meeting their foreign exchange requirements. Our policy in regard to borrowing on commercial terms has by and large been restrictive in view of the paramount need to keep the country's indebtedness within limits and to maintain our ability to service the foreign debts. It is nevertheless disirable to make selective use of the opportunities of borrowing abroad, particularly for financing projects which have a high rate of return and are also able to strengthen our export capability. It is in the light of these considerations that the balance of payments projections include borrowings from abroad on commercial terms.

(To be continued)

Petro Dollar Prospects

E. P. Radhakrishnan*

THERE is a definite policy shift in the Central Government's attitude with regard to foreign equity capital participation in Indian industrial ventures. Shri R. Venkatraman, the Union Finance Minister, is reported to have told a French Financial Journal recently, that he does not rule out portfolio investment of foreign capital in India. He also told a meeting of the Forum of Financial Writers in the Capital that the Government was thinking of relaxing the ceiling limits under the Foreign Exchange Regulation Act so far as foreign capital investment is concerned.

Under the existing provisions of the FERA, foreign investment in approved units cannot have more than 40 per cent of equity participation in public sector ventures.

Because of these rigorous restrictions, perhaps imposed for preventing any monopoly holding of Indian ventures by foreigners or by certain Captains of Industry in India, capital formation especially of equity capital, has been very tardy. It is good that Shri Venkatraman, taking a realistic view of the situation, has announced the Government's intention to relax these conditions in a selective manner. This reflects a change in the outlook of the Government

Shri Venkatraman's indication was intended preciously for inviting more of petro-dollar investment in India. One good development now is the most favourable treatment given to India by the Organisation of Petroleum Exporting Countries (OPEC). This organisation has "rolled on the barrel" so to say to India because New Delhi has emerged as the top recipient of aid from OPEC Fund for international development. Indeed, with a loan of 21 million US dollars India heads the list of developing countries enjoying the petro-dollar boom. With the signing of loan agreements recently, the OPEC Fund had pledged to give 210 million dollars as loan to 76 developing nations. The total amount of loan committed out of the petro-dollars amounts to 901 million US dollars, not a small amount.

OPEC Fund

The OPEC Fund for International Development was formerly called the OPEC Special Fund. It was created in 1976 by OPEC member countries to provide concessional financial assistance to other developing countries. The idea was to promote a new International Economic Order. As such it has also helped to establish other aid agencies and facilities which benefit the Third World.

The OPEC Fund is not the only channel through which member countries help other developing nations. It complements the aid extended by them through several other bilateral and multilateral channels. It encourages financial coperation among the developing countries. The Fund was changed in early 1980 into an international agency for financial cooperation and assistance. The Fund extends three kinds of assistance · (1) balance of payments support loan, which at present carries an interest of 0.5 per cent; (2) Programme loans with a payback period of 15 years including a five-year grace carrying interest at 0.75 per cent; and (3) project loans which carried an annual service charge of 0.75 per cent and have a maturity period of 20 years with a grace period of five years at maximum.

Foreign Equity Capital

The Finance Minister's hint is indicative of the mind of the Government of India that there is no hard and fast rule attached to application of FERA restrictions on foreign equity. A certain amount of purposeful flexibility, however, will have to be introduced and implemented if more foreign capital investment is to be attracted to India.

Upto the end of 1980 petro-dollar investments in India amounted to 700 million dollars. Due to the continued hike in crude price the oil producing and exporting countries (OPEC) in the Middle East have an abundance of investible petro-dollars. Although no accurate figures of this amount are available, it is estimated that the investible surplus of petro-dollars is between 25-30 billion dollars.

The Muslim countries generally do not risk their capital by investing it in the industrialised West. They prefer safer investments though with less interest. Many of the Arab countries are favourably disposed towards India both for political and economic considerations. India has all along been standing by the Arab cause in world forums and has not been interested in exploiting any country big or small. Further India has obtained a series of contracts in building up the economy of some of the Middle East countries like Libya, Iran and Iraq. Indian competence and straight dealing has won the confidence of many of these countries. A measure of this confidence in India is the fact that India recently acquired two large commercial loans from the petro-dollar market to finance two of her giant projects. By this breakthrough in the petro-dollar market India has achieved two things : one, breaking the cartel of international banks by bypassing them and negotiating directly with the oilrich OPEC countries; two, by obtaining big loans at much cheaper rate of interest.

Libor Rate of Interest

What is more, possibilities of further petro-dollar loans on commercial terms to India are considered to be very bright. The cartel of international banks had been consistently pegging the interest rate at one-half per cent more than the Libor (London inter-bank offered rate). India has, however, secured these loans directly at only three-eighth per cent above the LIBOR rate. This by itself is a major achievement by India. India can now look forward hopefully to attracting more petro-dollars to be invested in India.

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One condition, however, for relaxing the 40 per cent ceiling on foreign equity capital under the FERA restrictions is that if capital investment is accompanied by transfer of technology this condition may be relaxed. But since the Arab countries have little of advanced technology to offer, some other way has to be found out to waive the 40 per cent restriction.

One of the factors which inhibit the liberal inflow of foreign capital is the 40 per cent restriction under FERA. In the interest of speedier development of our economy a meaningful second look would have to be given to this condition. It is particularly gratifying to note that the realistic Finance Minister has now taken a stand for liberalisation of this FERA condition. How far he will be able to carry forward this desire and to what extent the government would lend its support to this proposal still remain to be watched.

Some Specific Fields

Shri Venkatraman has indicated some specific fields in which some relaxation of foreign equity capital participation might be given. For instance, one is the field of oil exploration in which many foreign companies are now interested. A second field is in the production of fertilisers and a third is coal-based fertiliser plants. Many details about such relaxation of the condition are yet to be worked out and one can only hope that the Government's final decision would be taken after taking many factors into account about inflow of foreign capital, India's self-reliance and India not being bamboozled into entering into such agreements which will hurt ultimately India's interests.

India is considering to what extent a maximum of petro-dollars could be obtained as equity capital and invested in a selective manner in petro-chemical industry, especially in fertilizers. Already ten additional fertilizer plants have been planned to be put up in the public sector during the Sixth Five Year Plan period. Drugs and pharmaceuticals is another field in which petro-dollars could be invested. Other fields of equity participation by petro-dollars are oil exploration and exploitation as also power generation. Much will of course, depend on the priorities to be decided by India and attractive terms to be offered to invite more of petro-dollars. India is currently in the petro-dollar market for obtaining a loan of 200 million dollars for financing some of the ONGC projects.

National Economy : Cautious Optimism

The pre-Budget Economic Survey of the Central Government estimates that the rise in gross national product in 1980-81 might be 6.5 per cent, in contrast to a decline of 4.5 per cent in the previous year. Agricultural production was expected to rise by 19 per cent—foodgrains production to a record level of 132 million tonnes. 1980-81 was a difficult year but also a year of recovery "from the crisis situation in 1979-80." Industrial investment has also started picking up in 1980-81.

The Survey expects that the growth rate of agriculture next year may be modest but that of industry may be significantly higher than that in the current year. The performance of infrastructure has improved significantly in the current year. The fulfilment of GDP growth target of 5.2 per cent in the next year will require harnessing of the unutilised capacity and continued improvement in the performance of the infrastrucure.

The Survey says that price pressures, especially those caused by international factors, are likely to continue in the coming years. But it should be possible to moderate inflation through more supply of commodities and the improving of the infrastructure. Until the middle of January this year, the wholesale index rose by 13.2 per cent as against 19.1 per cent in the same period of previous year. The Survey says that the growing demands for higher incomes and wages, unless pursued with restraint and due regard to productivity, could have a high inflationary potential.

In 1980, forty thousand new fair price shops were opened, most of them in rural areas. The Survey calls for extending the public distribution system and curbing hoarders, speculators and black marketeers.

The Survey says that balance of payments outlook is going to be very difficult in the medium term. The trade deficit in 1980-81 is likely to be more than Rs. 4000 crores. The outlook is bleak because of the rising cost of imported crude. The growth of remittances from abroad has also decelerated. While there is no escape from an expanding oil import bill, the Survey calls for import substitution in items like steel, cement, aluminium, fertilisers and edible oils. There should also be vigorous export promotion. In 1980-81 the net inflow of external assistance increased to Rs. 1459 crores from Rs. 483 crores in 1979-80. This includes Rs 541 crores drain from IMF Trust Fund.

There are indications that tax receipts in 1980-81 may be better than envisaged in the budget estimates.

In 1979-80 the autonomous undertakings of the Central Government incurred a loss of Rs. 74 crores as against a loss of Rs. 40 crores in the previous year. The commercial losses of the State electricity boards and road transport corporations continue to be serious. The pricing of public sector products will be critically examined so that there will be adequate returns on the large investments made. It will also be necessary to reduce budgetary deficits and review the lending rates on agaricultural loans. The Survey points out that the overall deficit of State governments has increased from Rs. 173 crores in 1979-80 to Rs. 513 crores in the current year.

The Survey proposes an all-out effort to eliminate wasteful expenditure both under the Plan and non-Plan heads.

Zambia's Economic Development

Navin Chandra Joshi*

THE Republic of Zambia (formerly called Northern Rhodesia) came into being on 24 October, 1964 as an independent State within the Commonwealth. This was just nine months after internal self-government had been achieved and Zambia was the first British dependency to be granted status of a Republic immediately on attaining Independence.

Zambia is a large country with a total area of 7,52,620 sq. km. which is greater than the combined area of France, Belgium, the Netherlands and Switzerland. The country is land locked by Ziare, Angola, South-West Africa Namibia, Botswana, Zimbabwe, Mozambique, Malawi and Tanzania. The country is, for the main part, on a high plateau, the general elevation of which varies from 1,067 to 1,372 metres above sea level. The name 'Zambia' is derived from the Zambezi River the tributaries of which deeply entrench the plateau that is generally covered with grass and thickly dotted with trees. A special feature of the topography is the patches of low-lying, marshy land with heavy black soil which helps in growing crops even in the dry season.

A 1978 estimate, based on the 1974 sample census, gives Zambia's total population as 5,472,000. Since 1969, when the last census was held, there has been dramatic move from the rural areas to the towns in search of more remunerative employment. Lusaka (the capital) alone showed a population increase of 8.9 per cent per annum from 1969 to 1974, as compared with the national increase of 3.0 per cent per annum. The average density of population is about 7 persons per square km., with great variation within the country as the highest number of people live in the Copper-belt province and the lowest number in the North-Western Province. There is a large number of dialects spoken in Zambia by a large number of tribes. The per capita income during 1976 was US $ 440 per annum.

Zambia became a One Party Participatory Democratic State in December, 1972 when the Constitution of the Republic was amended to provide that there should be only one legal political party, the United National Independence Party (UNIP). By law, therefore, no other political party or organisation can be formed. The executive powers of the Republic are vested in the President who is assisted by a Cabinet in the execution of the policies of the Party and the Government.

Since Independence, the Zambian economy has made notable advance on several fronts. The achievements have, indeed, been remarkable considering the various challenges faced by the country. The nation had to face the problem of the emergence of inflationary pressures arising from the upsurge in domestic demand, a natural development in the immediate post-independence period. In meeting the demand, the nation's enlarged import bill caused a balance of payments deficit in 1968 for the first time since 1962. Since then, the external factors like hike in imported oil prices and the global inflationary pressures are having their adverse impact on the Zambian economy.

The balance of payments situation further deteriorated as a result of fall in exports of copper, on the one hand, and an increase in import bill as well as invisible payments on the other. In fact, hardly had the country extricated itself from this situation through a series of collective measures when the nation had to face fresh challenges such as the border closure by the rebel regime in the erstwhile Rhodesia in January, 1973; the worsening international economic situation which was further accentuated by the oil crisis, giving rise to economic recession and inflation. In the wake of the border closure the nation's efforts had to be diverted for contingency planning. During 1975, the economy again experimented depression because of the steep fall in copper prices as a reaction to the continued slump in demand from the developed countries. And copper is the biggest foreign exchange earner for Zambia. As a result of the steep decline in export earnings coupled with an increase in imports, the country experienced a trade deficit of 82 million Kwachas in 1975 (One Kwacha-Rs. 10 approx.), the first ever since Independence. The year also witnessed a substantial balance of payments deficit of K 393 million as against a surplus of K 48 million in 1974. The economic situation continued to be unfavourable in trade during 1976 and thereafter. The Government took a number of corrective measures to bring about a measure of equilibrium in the economy, both externally and internally. This resulted in the devaluation of the Kwacha by 20 per cent in July 1976. The economic difficulties seriously affected the country's capacity to implement the Second National Development Plan (1972-76).

In 1975 imports totalled K 597,610,596, exports K 518,043,534 and re-exports K 4,129,132. The major items of imports are machinery and transport equipment, electricity and mineral fuels, chemicals, manufactured articles, etc. Principal exports are metals and tobacco. Zambia has trade relations with other African, and European countries; with the USSR and the Soviet bloc countries, with Latin America, Middle East and many Asian countries. Since Independence there has been a lot of diversification, both region-wise and commodity-wise in trade.

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The structure of the Gross Domestic Product (GDP) indicates the continued dependence of the economy on copper. Mining, predominantly copper, continues to contribute the largest share to the GDP though the share has declined from nearly 30 per cent in 1970 to 22 per cent in 1975. Copper accounts for about 90 per cent of the total exports (in value) with other metals, mainly zinc, lead and cobalt claiming another 7 per cent. Zambia has been making strenuous efforts towards diversification of its internal economy and this has yielded a degree of success. For example, the share of manufacturing in total GDP increased steadily from 7 per cent in 1965 to 13 per cent in 1975. Presently, the diversification process is in full swing and with a more vigorous infrastructural development in terms of power, transportation and communication, there is no reason why the manufacturing sector of the economy may not assume the commanding heights.

Soon after Independence, Zambia embarked upon a process of planned economic development. After two short-term plans (called the Emergency Development Plans), the Transitional Development Plan was launched in June 1966 with the main objective of securing rapid and sustained development in all areas of the economy. The Plan was scheduled to run up to December, 1970 but was extended upto December 1971 to consolidate the gains achieved already. The first National Development Plan was quite successfully implemented. The achievements, both in financial and physical targets, were satisfactory. The annual rate of economic growth exceeded the target rate by 3 per cent. The programme of industrialisation resulted in the establishment of several new industries like sugar, textiles, milling, nitrogenous fertilisers, fruit canning, metal fabrication and expansion of existing factories like cement and brewery. In power and electricity, the country is poised for attaining self-sufficiency.

The Second National Development Plan (1972-76) was launched on January 1, 1972. The Plan aimed at carrying further the main objectives which were embodied in the First Plan. Briefly, the major objectives included a further diversification of the economy, rapid development of the rural economy and spread of rural industrialisation and expansion in education and training so as to achieve rapid Zambianisation. The Plan envisaged a total investment outlay of K 1,956 million over the Plan period, comprising of the public sector investment of K 685 million. During the Plan period, implementation got hampered by various factors, mostly exogenous. These factors included the worsening international monetary and economic situation which was further accentuated by the energy crisis, the erstwhile Rhodesian border closure which created temporary shortage, the wide fluctuations in copper prices which affected budgetary and balance of payments stability, aggravation of inflationary pressures, and a critical manpower shortage. Consequently, plan outlay as well as achievements have been much less in real terms than the targets set for them. Currently, the country is having the Third National Development Plan with the major objectives of self-reliance and self-sufficiency in food and other essential commodities. The policy towards attaining self-sufficiency has been receiving increasing emphasis since 1975. Rapid rural regeneration holds the key for achieving this.

By far the most significant aspect of economic development of Zambia since Independence has been the introduction of a series of measures with the objective of ensuring Government's participation in industry, extending its control over a widening sector of the economy and involving Zambians in the economic development of the country. Earlier almost the entire sector of the economy was in the control of expatriates. These expatriate companies, taking advantage of the post-Independence boom, derived substantial profits from their business, most of the profits were repatriated abroad. The operation of these expatriate companies was detrimental to the interests of the Zambian economy. To remedy the situation, the Government instituted a series of economic reforms. The first reforms were announced in April, 1968 in terms of which the Govt assumed control over 26 major companies in the fields of wholesaling and retailing, building materials and transport. In 1969, the Government acquired 51 per cent control of mining companies and paid for it by the issue of bonds redeemable over a period of 8-12 years. On 31 August, 1973 the Government decided to redeem in full the outstanding bonds as a result of which Zambia is now in full control of the mining industry. The various privileges enjoyed hitherto by the mining companies have also been withdrawn. Thus the mining companies have been made subject to normal exchange control regulations.

With the extension of State control or ownership over a widening sector of the economy, it was necessary to create an organisational structure which could ensure the smooth administration of the various undertakings as viable and profitable concerns. With this end in view, the Government established the Zambia Industrial and Mining Corporation (ZIMCO) as the holding company and a number of agencies under its umbrella. These are the Industrial Development Corporation, National Import and Export Corporation, State Finance and Development Corporation, National Building Society, National Hotels Corporation, National Transport Corporation, Zambia National Energy Corporation, the Mining Development Corporation, etc. The rapid economic development of the country and, in particular, the steps taken to acquire Zambian control over an expanding sector of the economy, has provided ample scope for Zambian nationals to play a more active role in contributing to this development. The process of Zambianisation has proceeded at a rapid pace, and the expansion in education—especially at the technical and university level has opened opportunities for Zambians to hold senior posts. Several Zambians have been appointed to top management posts and are thus in a position to shoulder responsibility in policy making.

In the agricultural sector, about 65 per cent of the people of Zambia derive a living directly from farming. The agricultural industry stands second, copper mining being the first in importance in the national economy. Agricultural development, of both crops and livestock, is planned through state projects. One important consideration affecting agricultural policy is the need to improve the way of life of the rural communities so as to reduce the disparity between rural and urban communities and also to reduce the flow of people from the agricultural districts to the towns. Maize is the staple food for Zambians. Recently, Zambia launched a full scale 'war' on food shortages and hopes to be self-sufficient by the year 1990. Launching a multi-million Kwacha "Operation Food Production" programme in Lusaka on May 23, 1980 President Kenneth Kaunda said that he was very optimistic that Zambia would be able to feed herself and export the surplus. The Operation Food Production will, while involved in the production of food, not only benefit the various centres but will in fact open up Zambia's rural areas and expand the country's infrastructure. The programme entails a package of projects characterised by a comprehensive planning of the national economy, placing emphasis on priority needs of the masses. Given Zambia's averagely adequate rainfall per annum and the varying temperatures which can be termed as a blessing in disguise, it is hoped that the Operation Food Production programme will be a grand success. The irrigation schemes that are currently being run have overruled the myth that wheat and other crops could not be grown in Zambia. All the countries and international organisations involved in the exercise have brought in their skilled personnel and expertise.

The Central Statistical Office of Zambia has been publishing a new series of cost of living indices for the low income group and for the high income group with reference to the prices prevailing in the base year 1969. The cost of living has risen steadily since 1969 from year to year. In view of this, demand for wage hikes in the industrial sector has been followed by work stoppages resulting in loss to the national economy. The country is having a conspicuous dualistic economy with the rich becoming richer and the poor poorer.

One redeeming feature for the growth of national income and per capita income of the people is that Zambia may now concentrate in the exploration of uranium and iron ore in a big way. Recently, in addition to uranium discoveries several varieties of high iron deposits have also been found. Geologists have estimated that these iron ore reserves could be at least 200 million tonne. They are stated to be of excellent quality with total absence of impurities and having high metalurgical properties. It is believed that these easily mined deposits are the best in the world for the production of high grade steel. The new addition of iron ores brings the total reserves to over 1 billion tonnes. Surely, the manufacturing sector of the economy is poised for a breakthrough in the next decade.

Rate of Change in Real GDP, Consumer Prices and Money Supply

(Per cent change over previous year)

Year/Period	GDP at constant prices	Consumer price index	Money Supply
1961—70	6.2	4.3	.
1961—65	8.7	2.4	..
1966—70	3.6	6.2	18.5
1967—72	5.0	5.3	14.4
1973—78	1.2	13.3	12.5
1967	5.1	5.0	24.5
1968	2.5	10.7	25.6
1969	3.2	2.5	12.7
1970	11.5	2.6	15.4
1971	0.0	5.9	7.2
1972	9.3	5.3	1.0
1973	1.8	6.3	14.3
1974	7.6	8.5	12.7
1975	—2.1	10.0	10.5
1976	—4.2	18.9	25.0
1977	—4.2	19.9	14.2
1978	0.2	16.0	—1.9

New Systems for Saving Fuel on Board Ship

TWO NEW systems "Economy Sailing" and "Opti Trim" which are said to lead to substantial fuel savings on board ships have been developed in Sweden by the ASEA electrical engineering company in co-operation with Salen Technologies (Saltech). The systems have undergone extensive trials on ships in regular service.

"Economy Sailing" has been developed primarily for passenger vessels of all kinds. The system includes subprogrammes for determining the time of arrival and planning the route. This is of particular importance since fuel consumption increases progressively with the speed and for certain passenger vessels arrival one minute in advance of the scheduled time may result in extra fuel costs of several thousand dollars over the year. Trials performed with the new system have shown that it is suitable for use on all types of vessels having a fixed time of arrival. The investment will be paid back in less than one year, the companies say.

The "Opti-Trim" system calculates the trim position of a ship that assures the lowest fuel consumption for any given speed and displacement, making it possible to distribute the cargo, ballast and fuel oil in an optimum way.

(*S.I.P.*)

Oyster Farming

Mukund Sonambekar

OYSTER is a marine species growing in a protective covering of two shells. These shells are found sticking to rocks in the sea. The upper shell is like a lid which the creature can open and close at will like a snail. Sea water flows through the shells and the oyster absorbs its food and oxygen from it.

Recent experiments have shown that oyster catch can be multiplied by artificial breeding. Oysters are generally found in areas near the sea coast and India with a long sea coast can definitely take up Oyster farming with profit.

On the East and the West coasts of India oysters are found in large numbers. Their flesh is soft, tasty and nutritious. Besides 8 to 10 per cent proteins, it contains minerals like calcium, phosphorus, manganese and iodine. Being a delicacy for fish eaters it has a great demand all over the world. Countries like Japan, France, the U.S.A., Netherlands, and the U.K. have been successfully practising Oyster farming on an extensive scale by carefully breeding the same. Unfortunately in India, even though she has a large coast line not enough attention is being paid to increase the catch. Like fisheries, oyster catch can also become a big industry and it is, therefore, necessary to draw public attention to this enterprise.

Central Marine Research Station of the Indian Agricultural Research Institute has carried out many successful experiments in this field. Technology of this farming has also now been perfected.

Four speies of oysters found in India in large quantities are—"Cross Austria Madrasensis" on the East coast, "Cross Austria Discaidis" on the West coast, "Cross Austria Griphaidis" in Kutch area and the rock based "Cycrostria Kukulata". The last two species are available in abundance in the coastal belt of Maharashtra. The Marine Research Station, Ratnagiri of the Konkan Krishi Vidyapith has successfully produced both these species by breeding.

Oyster spawns are called "Spat". Semi circular tiles are used to collect these Spats. For this purpose tiles are dipped in a mixture of lime and sand and then kept in sea water in trays placed one upon the other in seven to eight layers. These trays are kept about half meter below sea water level. In a short time, number of spawns collect on those tiles. They are allowed to grow there up to the size of 25 mm and thereafter they are removed to the sea farm where these are reared further.

Spats can be collected by other methods also. Some times Bamboos with branches are used for this purpose. Different types of shells are also used. These shells are generally spread on the river bed where generally oysters lay their eggs. At places where water is deeper shells are hung to a string and by hanging them to a raft spawns are collected.

Artificially bred oysters generally are bigger in size and weight. Their per hectare production is also much more. Normally it takes about 2 years for an oyster to grow to its full size. But artificially they can be grown much faster e.g. "Cross Austria Madrasensis" spats found in the East coast may be grown to a length of 110 mm in a year. Generally, growth is 8 to 9 mm per month on an average.

Oysters should be collected prior to their laying of eggs. Because once eggs are laid the quantity of flesh also decreases and such oysters do not fetch good price. After taking out Spats from sea or from the river, they should be first washed clean so that all the dirt on the shell is removed. Thereafter they should be kept in clean saline water for a minimum of 24 hours and after keeping them in "chlorinated" sea water far an hour, they should be taken out for sale.

Sowing, Plate, Pole, Raft and laying of string are some of the methods of Oyster farming. In the sowing method, the bait material on which oysters are collected is spread on the sea bed and when oysters are drawn towards it, they are allowed to grow there. They are removed only when they are sufficiently grown in size.

> *The term Oyster Farming sounds rather odd, as Oyster is not a variety of foodgrain or vegetable. It is a marine species, lying stationary at one place sticking fast to the rocks in the sea. Naturally it is found in the coastal areas. For fish eaters, oyster is a delicacy.*

In a plate or tray system a sort of platform is constructed by fixing bamboos in sand where the water gushes forth forcefully during high and low tide. Spats are kept in the trays which are placed on these platorms taking care to see that these will always remain under water.

In a Pole method, a piece of wood, about 18" long is taken. A nail is fixed at about 2" from the top at one end. The pole is then fixed in sand. A bait material which attracts oyster spawns is hung to the nail fixed at the top of the pole when oyster are collected. This method is useful in shallow water.

Places where the depth of water is 20 feet and more raft method is useful for oyster cultivation. The raft is prepared by using small bamboos and wooden strips and it is kept on empty air tight drums or wooden boxes floating in water. To keep the raft floating at one place an anchor also is laid. From this raft wire ropes with bait material on which spats come and settle are lowered in the sea. Care must however be taken to see that the wire ropes do not reach the sea bed.

The long rope system is a little modification of the raft system. Many drums are tied in a row and two wire ropes are tied in parallel. From these two long ropes, ropes with bait material are lowered in sea water perpendicularly on which oyster are collected and grown.

It will be clear from above that oyster farming if carried out systematically can be a profitable business to fishermen staying near seacost and creeks.

(from Yojana Marathi)

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*Sabnis Vidya Mandir, Narayangaon, Pune Dist.

Bank Finance Helps Small Farmers

A. R. Patel*

FREQUENT famine and scarcity conditions in Ajmer district of Rajasthan are not uncommon. These are attributed mainly to the erratic behaviour of monsoon in regard to its commencement, frequency, quantum, distribution and cessation. This has been affecting agriculture in the area considerably. The farmers, therefore, often find it difficult to make living out of agriculture. To overcome the difficulties of scarcity of water, Bank of Baroda took up minor irrigation scheme in the Masuda Panchayat Samithi of Ajmer district.

The main objective of the scheme was to exploit the surplus underground water available in the area. Investigations revealed that there was enough water potential and it was good for irrigation and even for drink purposes. Thus the Bank sanctioned the Minor Irrigation Scheme for Masuda and a sum of Rs. 33.045 lakhs was disbursed to 640 farmers, for various purposes such as sinking of new wells, deepening of old ones, installation of diesel/electric pumpsets and construction of 'pacca' field channels. This minor irrigation scheme has been in force since 1974. The small farmers financed were 426 constituting about 67 per cent. The net impact of the scheme is that today 265 farmers, of whom 212 are small farmers, own wells for assured irrigation. Other 98 farmers, of whom 72 are small farmers, have renovated their wells for augmenting irrigation facilities. Yet another 277 farmers of whom 140 are small farmers, have installed electric/diesel pumpsets to increase the efficiency of irrigation and raise farm production. Out of all the farmers benefiting from the scheme, 128 (20 per cent) were interviewed for the purpose of evaluation and determining the impact which it has made on them. A total area of 1360 acres is held by these 128 farmers. And out of this area, 633.5 acres of land has now been brought under irrigation after investment. The area under irrigation to the total crop area stands at 46.58 per cent. There has been an increase in the intensity of cropping. The percentage increase in the rabi cropping is 65.5. Rabi crops like wheat, barley and gram have occupied more area. It is heartening to note that there has been 39.2 per cent rise in the per acre production of crops in general. Rabi crop yield has increased by 38.7 per cent. Production of maize has gone up by 17.87 per cent, wheat by 50.42 per cent barley by 20.48 per cent and gram by 96.67 per cent.

It was observed that the farmers have begun investing more in labour, seeds, fertilisers and pesticides. But this investment per acre unit cannot be regarded as spectacular. It is expected that in the near future with better techniques of irrigating farms, the farmers will have to raise their investment in inputs which in turn will be reflected in the rise in the output. It is also observed that the farmers have begun improving or building their assets such as housing accommodation, durable goods, livestock, farm implements etc.

It was felt that benefits under the scheme would have been much more had some limiting factors given below, been kept under control.

(1) Low yield of water in wells which was inadequate to irrigate rabi crops as also to provide protective irrigation to kharif crops,

(2) Non-availability of technical guidance on farm development work,

(3) Tendency not to avail of crop loan,

(4) Acute difficulty and uncertainty in getting inputs and electric power for running pumpsets, and

(5) Inadequate know-how on the use of improved seeds and fertilisers.

Cropping Intensity

With a view to exploiting the surplus ground water for increasing the most urgently needed irrigation facilities in 94 villages of Masuda Panchayat Samithi, substantial investment has been made by the bank. This investment has yielded some benefits which have appreciably increased the cropping intensity, crop productivity, farm output, employment opportunities and ultimately net incremental income of the farmer. However, a close scrutiny of the quantitative measurements of these parameters has clearly established that the increase in the cropping intensity with reference to the land held by an individual farmer is appreciably lower than that anticipated in the project. The reasons for this state of affairs have been analysed herein. The cropping intensity under irrigated farming conditions is a function of (i) adequate yield of water in the well; (ii) quality of the water, (iii) types and efficiency of water-lifting devices; (iv) preparation of land so as to be capable of receiving irrigation water uniformly and reducing the water-losses viz. on farm development works—levelling/shaping of fields, field-channels and bunding; (v) knowledge of irrigation technology so as to increase the water use efficiency and

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*Bank of Baroda, Bombay.

(vi) investment capacity of the farmer to undertake all these activities. It has been seen that while analysing the data relating to individual farmer under study one or several of these factors have been operating which have, therefore, reflected in the shape of low level of cropping intensity as compared to that anticipated in the project. In this connection it is very pertinent to appreciate that the wells where the yield of water is low/inadequate should be examined scientifically and steps taken to deepen them to increase the yield of water atleast during rabi and hot weather season. The cases where the farmers have indicated that the water is saline, the quality of water should be tested during different seasons and farmers guided in respect of frequency of use of this water and crops which can be raised with water of this quality. These farmers who have been lifting water through *mhots* may have to be motivated to go in for pumpsets if the yield of water permits them to do so and/or they have to be guided to increase the water use efficiency. Irrigated farming presupposes the completion of on-farm development works such as proper levelling/shaping of land, layout of field channels, bunding etc. so that the water use efficiency could be increased and more area could be brought under irrigated crops. Thus, efforts have to be made to convince the farmers to take up these works. The crop raising under irrigated farming is not so simple as could be thought by the farmers. The subject of irrigation technology which has direct relevance to the reduction in water losses, increasing the water use efficiency, reducing the adverse effect of over-irrigation or under-irrigation on corp production has to be taught through demonstrations. This also necessitates the importance of setting up of Irrigation Research-cum-Demonstration Farm in the project area or under similar agro-climatic conditions. The farmers may have to be advised on the availability of loan facilities for such purposes so that the investment already made in digging wells can yield better results with a little more investment on farm development works and replacing the indigenous water-lifting devices be checked/studied so as to avoid under-utilisation as also reduce avoidable expenses on diesel and electricity.

The results have also revealed that per acre production of various kharif and rabi crops has increased during post-investment period. However, the level of production is considerably lower than that anticipated in the project. The per acre production is directly corelated with the factors like (i) adoption of scientific methods of cultivation, high-yielding/hybrid varieties of crops, fertilizers and pesticides; (ii) judicious application of water—how much, when and how; (iii) adequate and timely availability of inputs—seeds, fertilizers, pesticides, water and farm-power including diesel/electricity, (iv) continuous and easy access to the extension staff for technical guidance and (v) production-credit as warranted by cultivation cost. The difficulty in regard to the availability of one or more of such factors was responsible for reducing the yield of the crop.

The irrigated farming in sharp contrast to dry farming technology creates a large number of employment opportunities for the labour force in the area through various farm-operations which have to be performed in time. However, in this study, the increase in employment opportunities is significantly low. Although the investment on labour, seeds, fertilizers, farm-power, has increased to some extent, it has been considerably low as compared to that anticipated in the project. This underlines the need for standardising the norms of cost of cultivation of various crops on the basis of scientific studies.

Net Incremental Income

Total farm-output and net incremental income per farmer has indeed increased because of irrigation facilities. However, the farm output has been the net result of interaction of increased cropping intensity and increased per acre crop productivity. Once these factors are properly given a scientific touch, the farm output can increase considerably. Similarly, the net incremental income per farmer has been the function of increased cropping intensity multiplied by increased per acre productivity multiplied by net income per care. This can also increase substantially if various limiting factors/constraints as indicated above are kept under control. The study further shows that while the Bank has not taken a rigid or stiff attitude in accepting the revised cost-structure for sinking of wells and disbursing the exact requirements of funds for this purpose, the farmers should have been motivated/pursuaded to secure the crop-loan for cultivation of various crops on scietific lines and term-loan for undertaking the on-farm development works. Of course, this requires a close coordination of cooperatives, service societies, extension agency input dealers and the bank.

The balanced use of plant nutrients should be advocated on the basis of soil-analysis report of individual fields so as to reduce the cost of production as also maintain the optimum fertility level of the soil for crop production. Individual farm plants and farm-budgeting in view of the farmer's resources should be prepared for optimum return on the investment. The Ground Water Survey Department should undertake a sample survey of the wells with regard to the seasonality of water and farmers be guided in respect of changes in the cropping pattern in light of this. The work of the collection of accurate data relation to the cost of cultivation inputs used, diesel/electricity consumed, yield realised, and value of produce received should be undertaken continuously so as to have a clear picture of the investment, return and the repaying capacity of the farmers. □

Aids to Development

(*Contd. from Page 3*)

reduction in the estimates of new harvest, the falling grain reserves and the pre-harvest high prices in production centres, cause concern on the farm front. Any more increase in the imported oil prices may further undermine our foreign exchange position and also add to the domestic inflation. On the whole, we have to produce more in all sectors, so as to meet both internal and export demands and also to earn enough surplus for further development. □

Medical Consultants in ICDS

B. Chatterjee*

THE basic aim of 200 ICDS Projects (Integrated Child Development Services) (66 Tribal, 106 Rural and 28 Urban-Slum) is to promote health and nutritional status of children of 0—6 years of age; to lay foundation for psycho-social and physical development of the child; to reduce the incidence of morbidity, mortality specially among infants. It also aims at lowering malnutrition and school dropout rates among the target groups and to enhance the capability of mothers to provide normal health, nutrition and child care within the precincts of the home. In order to improve the quality of service delivery, medical consultants have been involved in a big way in the programme with very satisfying results

This was mainly due to the sagacity and foresightedness of the then Minister of Education and Social Welfare, Government of India, when the programme was launched in 1975. The four functions of the consultants revolve round training and orientation of medical and paramedical field staff; survey and monitoring of health and nutrition parameters of the project ; mobilising voluntary agencies supporting the programme and co-ordinating the various training efforts and other services in their respective areas. Consultants informal intervention and good offices have, in many cases, helped to improve co-ordination and integration of services. This is the crux of this inter-sectoral programme. At the apex, the Central Co-ordination Committee of Consultants is located at the All India Institute of Medical Sciences under the leadership of Professor B. N. Tandon and his colleagues. Where the number of projects so warrant, a State-ordinator is appointed to function as a liaison between the local consultants and the Central Committee.

It is heartening to note that due to incessant and unceasing efforts of this Consultants' Group, some 70 to 80 per cent of medical and para-medical field staff has so far been trained and the period of training, as a result of the experience gained, has also been extended from 5 to 7 days. Yet the constraint of frequent transfer, inability of District Health Officer to release the staff for training, changes due to promotions, etc. cause frequent turnover which hamper the progress and performance of functionaries. Among the para-medical staff, repeated training and orientation in health and nutrition has been confined mainly to Anganwadi workers generally. It has yielded good results. The same cannot be said of other para-medicals like Auxiliary Nurse Midwives, Lady Health Visitors, Community Health Workers etc. It is also a fact that many projects, especially in urban areas, do not have full complements of medical and para-medical staff in position.

It has also been found that the present emphasis is biased in favour of theoretical lectures and not enough attention is apparently being given to practical field training and demonstrations. It was, therefore, suggested that the curriculum of all types of functionaries should be revised to include about 75 per cent practical field work training and demonstrations and only 25 per cent of time strategy. it is necessary to have more training centres and the training groups would have to be limited to 10 or 12 trainees under intense field supervision. It was recommended that each training centre should be given one project for direct management and to serve as a field work placement centre. The duration of training for Anganwadi workers was found to be too inadequate to communicate knowledge and skill needed for her work and this lacuna can be filled either by increasing the duration of training or by organising frequent training programmes for them. The present method of evaluation of training programme was also discussed and found inadequate. It was, therefore, suggested that a more effective method based on assessment of the performance data culled through quarterly monitoring reports should be evolved. Of the 200 Blocks, baseline survey pertaining to health and nutrition status has been completed in 88 Blocks. The hold-up in other Blocks is due to non-availability of medical consultants.

Progress report shows the mortality rate among severely malnourished children is at 3.5 per cent to 4 per cent as a result of domicilliary treatment under ICDS Projects while hospital figures shows 10 per cent to 15 per cent mortality in the same age group. Although five years have elapsed, the situation regarding administrative and operational matters reveals uneven progress. Presently, the situation is not uniformally satisfactory as the full complement of staff needed in the PHC or in the Project areas are not in position. The situation being particularly depressing in tribal and inaccessible rural areas. There are still many projects where integration of services needs to be stepped up as the ICDS doctor is still supposed to be the exclusive medical functionary to deliver services under the Project. As has been mentioned earlier also, frequent transfer and promotion and ad-hoc appointments have de-stabilised the progress in many blocks. Non-supply of needed drugs, irregular or non-supply of food-stuffs and rising cost of foodgrains and nutrients make it impossible to provide the stipulated supplementary nourishment of 300 calories at 0.25 paise per unit per head. The situation, specially in urban projects, is particularly distressing for not only that the general guidelines applicable to rural and tribal projects are not applicable in urban situation but also there is a great variation in urban areas due to, size, type and structure of different categories of towns and cities and metropolitan areas.

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*Social Development Consultant (AVARD), and Member Central Advisory Board for Child Labour, and Member Advisory Panel of the Family Planning Foundation.

In fact, due to vast variations in economic, cultural and ecological factors in different parts of India, no single model can be proffered for universal application. While flexibility has been permitted by the guidelines, yet no project administration has taken initiative to evolve or develop an alternative model for delivery of services based on the objectives of the programme. In fact, before the programme is further expanded, it would be worthwhile to set up a study group (a) to re-structure and recommend a more viable design of urban project and (b) to develop alternate modalities of delivery of services through, say, voluntary organisations, other departments like Tribal Development Departments, IRD Programmes and projects allotted to medical colleges, schools of social work, home-science colleges and others institutions interested in the development of child health and nutrition. As in all other programmes, enhancing lines of communications between various tiers of Government, concerned development departments, voluntary agencies and project administration will go a long way in promoting co-ordination leading to integrated delivery to services to the child in need.

It is heartening to note that a new system and culture of co-ordination and collaboration is gradually developing which may be emulated with profit by other development workers.

As ultimate purpose of development is to provide ever increasing opportunity to all people for a better life through improved facilities for health, education, nutrition, employment and social services; therefore, children who constitute the most vulnerable group of human resource development, need priority attention through a package of services like the one envisaged and being delivered under the ICDS Scheme. There is no question that the programme should develop sinews to deliver basic services needed for health and welfare of the child during the critical period of his existence. ICDS promises to go a long way in fulfilling this promise for our children, who are indeed the hope of our future. ☐

Republic Day Awards for Meritorious Inventions

THE National Research Development Corporation of India has announced Republic Day (1981) Awards for meritorious inventions. Awards totalling Rs. 29,000 and four Certificates of Merit have been given for 10 inventions. Financial Assistance of Rs. 5,000 has been granted for the development of one invention.

The awards for meritorious inventions are announced by the Corporation twice a year on Republic Day and Independence Day. Details of the awards and financial assistance are as under :

Awards

Sarvashri N. M. Raju and L. M. Prasad of Central Mining Research Station, Dhanbad have been jointly awarded a sum of Rs. 10,000 for the development of 'A' quick setting clamp for cross-bar support in mines' (known as Safari support in the industry).

Shri K. K. Palanisamy of India Grounder Manufacturers, Udumalpet Tk., District Coimbatore has been awarded a sum of Rs. 5,000 for the development of the 'Grounder Automatic Angle Meter'. With this angle meter it is possible to measure the horizontality and verticality of surfaces in building and civil engineering works etc. It is a simple alternative to the spirit level and the plumb bob

Mrs. Annalakshmi Rajendran of Bombay has been awarded a sum of Rs. 5,000 for the development of a 'Portable Electronic Tester for carbon microphone and electro-magnetic sound receiver'. The tester is a simple and convenient device for checking the sensitivity and resistivity of carbon microphones and sensitivity of, electro-magnetic receivers used in telephones.

Dr. T. S. Ranganathan, Shri R. Krishnamurthy and Shri K. A. Ramasamy of Central Leather Research Institute, Madras have been jointly awarded a sum of Rs. 3,000 for the development of a 'Novel process of printing of leather (Novotone process I'). With this process it is possible to print various designs and patterns on the grain side of the leather, particularly the lower selections, using half tone blocks.

Shri Ram Bai Bhasin of Lucknow and Shri Amar Nath Tandon of Calcutta have been jointly awarded a sum of Rs. 3,000 for the development of a 'Special Attachment to existing Battery operated (Commander type torches) for using them as signalling lamps'.

Dr. V. N. Bindal and Shri Mukesh Chandra of National Physical Laboratory, New Delhi have been jointly awarded a sum of Rs. 3,000 for the development of 'Piezoelectric Linear Drive Transducer' and 'Piezoelectric Micrometer'. With the 'Piezoelectric Linear Drive Tranducer' it is possible to accurately control liner displacement of the order of fraction of a micron.

Dr. A. G. Madhava Rao and Sarvashri V. S. Parameswaran and E. Abdul Karim of Structural Engineering Research Centre, Madras have been awarded certificates of merit for the development of a 'Technology for design and production of monoblock prestressed concrete railway sleepers'.

Dr. G. Kuppuswamy and Dr. V. C. Venkatesh of Indian Institute of Technology, Madras have been awarded Certificates of Merit for using the 'Beneficial effect of magnetic field on electro-chemical grinding'.

Shri Mannath Radhakrishnan of Bombay Textile Research Association, Bombay has been awarded a Certificate of Merit for the development of 'The BTRA Drapemeter'. It is a simple instrument which produces a faithful print of the drape pattern of a fabric.

Dr. Kailash Chandra and Shri Ramesh Chandra Dhawan of National Physical Laboratory, New Delhi have been awarded Certificate of Merit for the development of 'Process and apparatus for making three-dimensional panoramic photographic displays to be seen without any viewing aid'.

Shri Taninder Kumar Nayyar of M/s. Bharat Aluminimum Company Limited, Amarkantak (M.P.) has been granted financial assistance of Rs. 5,000 for the devepment of a 'Pedal operated twin cylinder bore pump'. The pump is likely to be useful for irrigation purposes in small farms. ☐

Community Ownership of Bio-gas Plants

Dr. Chitranjan*

INCREASING POPULARITY of bio-gas plants in the rural areas is on account of two factors : (a) the cheap fuel (methane gas) that it produces for lighting and cooking and (b) the remaining slurry which is very rich in nitrogen and humus and is an ideal organic manure. Of late a new and more vital dimension of far reaching consequence has been added to its utility by invention of gas operated engines which can be used for operating pumpsets and for performing a variety of other agricultural operations. It has been found that the gas operated engines result in about 80 per cent saving of diesel fuel as compared to the conventional diesel operated engines. Thus, the bio-gas plants would prove to be a great boon as they reduce the dependence of the cultivators on inorganic fertilisers and diesel, both of which are in short supply and whose imports cause huge drain on scarce foreign exchange resources of the country.

However, one of the most disquieting features of the present pattern of ownership of bio-gas plants has been that hitherto the benefits of Government subsidies for insallation of bio-gas plants have been largely appropriated by large and medium cultivators who have the necessary wherewithal in terms of finance to meet the matching contribution requirements, requisite number of cattle heads, requisite space etc. By now it has become evident that left to themselves the weaker sections of the village community can not come forward on account of limitations of financial and physical resources.

Community Ownership Approach

So, the ownership of bio-gas plants cannot be promoted among the weaker sections on individual basis. The need of the hour is the adoption of a new approach namely community ownership approach, if the weaker sections are to be benefitted by Governmental assistance.

For this purpose, there is a need to select a compact hamlet inhabited by 25 to 30 households with a cattle popuation of atleast 40 to 45 because only such a permanent cattle population can support a plant size of 25 cubic metre, which can produce enough gas for a 5 H.P. engine as well as for cooking and lighting etc. If the number of cattle heads marginally falls short of the requisite number, the plant may be technically designed on the basis of cattle dung plus night soil as feed stock.

Such a device has got two distinct advantages Firstly, it will enable the plants to overcome the crippling limitations imposed by paucity of cattle dung. Secondly it will prove to be a great boon in keeping the locality neat and clean. This new device will provide both fuel and manure for the use of the inhabitants.

In the installation of bio-gas plant and other equipment such as a 5 HP gas operated engine, pumpsets, community gas stoves, threshers etc., two types of costs would be involved. As the fixed cost for the installation of the envisaged plant size as well as for the puchase of other capital equipment like gas operated engines, thresher, pumpsets etc. would be quite substantial, a 100 per cent grant may be considered in suitable cases for covering such fixed costs. The proper maintainance|operation of the plant and other allied equipment would require the services of a well trained, full time, paid mechanic. Besides some recurring cost would have to be incurred for proper maintenance, up keep and replacements. The operational component of cost may be met in the following ways.

(A) Suitable charges may be worked out on an hourly basis for using the services of gas operated engine. The proceeds from the sale of irrigation water, thresher services etc. must be such as to fully cover the operation cost as discussed above. Here an element of progressiveness may be introduced in the rate structure by levying slightly higher charges on farmers from non-weaker sections.

(B) Besides, some income may also accrue to the plant from the sale proceeds of surplus slurry after its distribution (on per cattle head basis) among the contributing cattle owners. Such surplus is likely to be there in case of plants based on cattle dung plus night soil as feed stock.

A community gas stove with several burners may be provided for the hamlet which feeds the gobar gas plant. A 25 cubic metre capacity plant would produce adequate surplus gas (about 7 cubic metres) for cooking and lighting after feeding a 5 HP. engine for eight hours. This will obviate the wasteful necessity of using cow dung cakes|agricultural wastes as fuel and thus take away a lot of drudgery out of cooking process of the rural poor. Besides saving of time, more cleanliness, lessening of fire hazards, this device may generate more income for the weaker sections through sale of agricultural wastes (which would have been otherwise used for cooking) and increased availability of time to women for other agricultural operations.

The community ownership approach would be successful provided certain basic pre-requisites are fulfilled. The whole approach is based on active cooperation of the resident beneficiaries, reinforced by a towering hamlet level leadership, capable of overcoming the dissent which may arise at various stages right from sharing of the costs to sharing of the benefits. The best way would be to constitute a gobar gas samiti entrusted with the task of proper maintenance of the plant and equipment from the sale proceeds of the various services rendered by gas operated engine and the surplus slurry if any.

To begin with, a few such plants may be set up on a pilot basis. The Gobar Gas Samiti may be constituted in the initial stages itself so that it might be fully associated in the installation of the plants and machines. The charge of the plant and machinery may be handed over to the Samiti on a turn-key basis. After the plant is handed over to the Samiti the Government intervention may be reduced to the minimum possible consistent with the objective of its smooth operation. ☐

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*Senior Research Officer, Planning Commission

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Sickness in Small Industries

S. Sundaram*

THE SMALL SCALE INDUSTRIAL SECTOR has completed 25 years of its existence. Started with the laudable motive of generating employment it has now over 5 lakhs units employing more than 60 lakh persons. There are about 60,000 small industrial units in Tamilnadu. Next to Madras which has about 13000 small industrial establishments comes Coimbatore with over 4500 registered and an equal number of unregistered small units not depending upon promotional agencies for help and assistance. Besides being instrumental in employment generation the small industries have made a breakthrough in the field of technology. The small sector manufactures many items like sophisticated machinery and instruments including those in the electronic field. It has also made a dent on the export front.

However, a large number of these small industrial units have become sick. While according to official estimates 25 per cent of these units are sick the actual percentage varies between 40 and 50. When a unit is working at 20 per cent of its capacity and below it is considered sick.

There are two types of entrepreneurs—those financially sound and able to set up their units without outside financial assistance and those technically qualified but depending on Government for financial help. The entrepreneurs of the first category have strong financial background and with better business acumen and financial management they are able to achieve success with lower investment, high turnover and reasonable profits even in the first year. They are able to get things done in promotional and regulatory departments and financial institutions. With their knowledge of working of the various departments, delays in obtaining clearances and certificates and licenses are either reduced or avoided. They are thus able to concentrate on production and marketing without wasting their time in unproductive work connected with the Government departments and other agencies.

Though technically qualified the entrepreneurs in the second category do not have experience in the chosen fields. Fresh from colleges or technical institutions and enamoured by government advertisements promising them developed plots, sheds, subsidies, reduction in interest rates and assistance in marketing, they choose the small scale sector for starting industrial ventures. But they do not possess knowledge of the working of government departments connected with the promotion and regulation of small industries nor do they possess the business acumen.

Yet another category of entrepreneurs entering the small sector are those technical persons who have worked in large and medium industry in some capacity and decide to start a small industry of their own with the money saved by them. Some of them are frustrated people who are not satisfied with the working environments and want a change. They decide to set up their own units for personal satisfaction and for economic reasons. Such entrepreneurs also do not know the working of the various departments. They might have specialised in some functional area but do not understand other areas like financial management, marketing management etc. They do not also know the working of the various Government departments. For the purposes of running a new unit they are as raw men as the students from Colleges.

Causes of Sickness : There are several reasons for the industries becoming sick. Experience of small entrepreneurs has shown that to a certain extent sickness is caused by the modes of working of Government Corporations, departments and agencies. Their working policies are utopian, non-committed and there is lack of co-ordination among the agencies and departments engaged in the development of industries.

Taking the case of allotment of land for the factory or shed for the small scale entrepreneur, experience has shown that entrepreneurs have mostly been allotted either too big or too small sheds. Besides the cost of construction of sheds and developed plots was very high. As a result the entrepreneurs had to incur more capital expenditure and the consequent higher interest amount due to the promotional agencies.

Licensing and other Formalities : Often the entrepreneurs had to wait for one or two years and even more to obtain licences, approval and clearances from departments like Municipality, Health and Town Planning. There are also delays in obtaining licences or permission from tax departments.

Delay in getting licenses and connections from the Electricity Department is a legend by itself. The entrepreneurs wait for indefinite periods for sanction of new power connections or additional load. Since power is not made available to small entrepreneurs, investments made on land and building and on machineries installed expecting power connection early, becomes a burden. The entrepreneurs incur expenditure towards the payment of interest on the loans procured by them towards purchase of machinery installation or allotment of sheds and factory building.

Shortage of Raw Materials : Many industries, particularly engineering suffer from want of adequate supply of scarce raw materials. Supplies of such raw materials have not only been inadequate but also erratic. Consequently the small industries are compelled to buy raw materials at exhorbitant prices in the open or black market resulting in loss or reduction in their margins of profit.

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*Executive Secretary, Coimbatore District Small Industries Association, Coimbatore.

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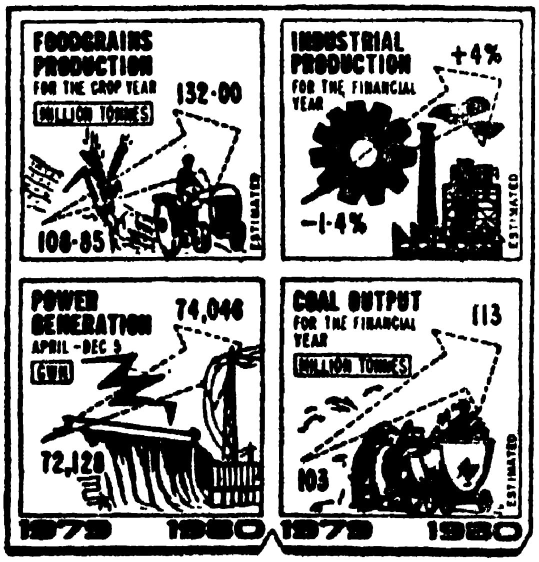

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SFDA in Sambalpur

K. Sarap*

The Small Farmers Development Agency was started in Sambalpur district covering all the 29 blocks in 1974 to improve the agricultural production of small cultivators by providing credit, inputs and other facilities. Its area of operation was redefined in 1975 to cover only 16 non irrigated blocks At present the Agency covers 159 Gram-panchayats in 2061 villages with a population of 8.08 lakhs. The project was supposed to cover 15,000 small farmers, 30,000 marginal farmers and 5,000 agricultural labourers within the Fifth plan period. Agriculture in the district is dominated by small and marginal farmers, for 71 per cent of the total operational holdings are below two hectares in size. The Scheduled Tribes and Scheduled Castes together constitute 45.5 per cent of the total population. The agricultural labourers form 28 per cent of the total labour force. There are 3.8 lakh small and marginal farmers in the district. About 38 per cent of the cultivated land consists of Att (ridges) and 34 per cent of Mal (slope) land.

Upto December 1979, 56,453 small farmers, 76,363 marginal farmers and 11,243 agricultural labourers have been identified. Out of these total members, 92,907 have been enrolled as members in cooperative societies. About 21,039 identified members have benefitted from one or other functional programmes like dugwell|tubewell, milch cattle, goat| sheep and poultry farming. The cooperative societies have sanctioned Rs. 58.02 lakh as medium term loan and Rs. 66.02 lakh as long term loan to the enrolled members. The commercial banks have financed Rs. 12.56 lakh to these farmers during the same period. Nearly 15 per cent of the identified members have received benefits from one or other programme through the SFDA.

Evaluation

Judging from the performance, the SFDA has overfulfilled its target of identifying 50,000 small, marginal and agricultural labourers. In contrast to this, only 21 thousand of the identified farmers have received some sort of benefits. Further the agricultural labourers have benefitted much less than the small and marginal farmers. For instance, 1.33 lakh marginal and small farmers have been identified as compared to 11.2 thousand of agricultural labourers. The total achievements upto December 1979, were 5479 dugwell/tubwells, 73 pumpsets, 22 units to milch cattle and 1304 units of goat and sheep. By these functional programmes 21 thousand members have been benefitted.

Problems

The process of identification of small and marginal farmers is a tenuous one. The land records are not in proper order. So, it becomes difficult for the small farmer to get the identification certificate. Without this certificate he cannot claim any subsidy from the cooperative or commercial bank.

For the sanction of loan the officials of the cooperatives insist on a guarantor. It becomes difficult for the small farmer to persuade a member who can act as guarantor for him.

Sanctioning of loan is a time-consuming process. The borrowers visit the lending institutions time and again to get the loan sanctioned. Ultimately the actual costs of borrowing from formal institutions become higher for the small farmers.

The risks involved in the new schemes may deter the small farmers from going to the formal institutions for loan. The recurrence of diseases among the ducks and chicken is frequent. Sometimes, the disease is so severe that the poor farmer faces heavy loss from these activities. Similarly, for husbanding the goat and sheep, the farmer has to apportion his time between working for his daily wage and taking care of these animals. When he evaluates this in terms of his daily work, he may not like to take risk for the new activity

A large number of cooperative societies serving the small farmers in the district are dormant and their loan business is low. Further, the percentage of overdues to total loan outstanding in the cooperatives of the SFDA area is very high. The area of operation of the SFDA is in unirrigated area and it is precisely here the performance of the cooperatives is miserable. For instance, in Western parts of the district that is in Padampur and Baragarh cooperative circles covering 28 cooperative societies six blocks, the percentage of borrowing members to total membership was below 10 in 1978-79. The percentage of defaulters to total indebted members was 85 in the same year. The proportion of overdues to total loan outstanding was 83 per cent in general. While this was 80 to 82 per cent for the size of holding upto two hectares, it was slightly less (73 per cent) for the size of holdings of four hectares and above. The proportion of overdues to total loan outstanding was the highest 88.80 per cent for the size of holding between two to four hectares.

The percentage of recoveries to total loan outstanding was 28 in 1978-79. In 25 out of 28 cooperative societies of this area, the proportion of recoveries to total loan outstanding was below 13 per cent. All these suggest that these cooperative societties are nonviable. In this situation it is difficult for these societies to serve the small farmers properly.

The managements of the cooperatives are heavily influenced by big farmers and the so-called small farmers who have other business. As a result, large number of small farmers do not get loans even though they are members of the cooperatives.

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*Department of Economics, M.D. University, Rohtak

Nearly 80 per cent of the total amount of crop loan is given in kind and the rest is in cash. Further, he has to lift 60 per cent of the loan in the form of fertilizers. Late supply of fertilizers that too not to the extent required delays the cash part of the loan resulting in the prolonged agricultural operations. Further the officials adopt a lower scale of finance for the small farmers in order to discourage them from misusing the loan. Ultimately, the amount of loan becomes too small for the crop even if credit is available to them.

Marketable surplus is one of the factors which the cooperative officials take into consideration for assessing the repayment capacity of farmers. Since the small farmers, especially in dry area, have little marketable surplus with them, their repayment capacity is limited. This influences the credit institutions in the disbursal of loan unfavourably to small farmers.

Lastly, the coordinating and monitoring activities of the SFDA are poor in the district. The administrative function of this Agency vis-a-vis the participating institutions is very much inadequate. The guidelines given by the agency to cooperatives and commercial banks, are not being followed properly.

Since the cooperatives are the major source of finance to the small farmers, their management should be restructured to give proper representation to small farmers. The tenuous process of identification of small farmers should be simplified. The block level officials accompanied by revenue officials should launch a special drive by going to the villages to identify the small and marginal farmers. The present way of identification seems to be misused by traders having small pieces of land. Though the SFDA scheme has been in operation in the district for the last six years no proper evaluation has been done in regard to the increase in living standard among the beneficiaries. It is high time to examine the project as to what extent (a) it has helped in increasing the living standard of the beneficiaries, (b) whether there is any misuse of the benefits by the farmers and trader farmers for whom the subsidy is not meant for and so on. While doing so one has to evaluate the role of other input markets, for the farmers deal with all of them simultaneously along with the credit market ☐

Sickness in Small Industries

(*Contd. from Page 29*)

Delay in Securing Financial Assistance : Entrepreneurs in the small scale sector often find themselves in financial trouble from the beginning. To begin with there is delay in getting their projects appraised and loans sanctioned. They are not acquainted with the working of these institutions and their time consuming procedures like filling up of several forms and certificates and production of various documents, records, certificates, reports, declarations etc.

Sanction of loans like term loans and other facilities consume a lot of time resulting in frustration and accumulation of interest on loans secured for buildings and purchase of machinery and other items. The interest rates are also on the high side. Consequently the starting of the unit and production are affected in the initial stages. Besides delay in the sanction of loans or accomodation during running of a unit also results in avoidable losses. In some cases the banks and lending institutions help the small industries by financing them in the initial stages. Later the industries do not get the required help. As a result the entrepreneurs are forced to raise funds in the open market at exorbitant rates of interest.

Conclusion : The State Bank of India which conducted a survey of the sick units and studied the reasons for sickness in the small scale sector has mentioned in its report that lack of managerial skill is one of the reasons for the sickness of the small industries. It is, however, a matter of opinion whether or not the small entrepreneurs effectively used their managerial skills. Given the necessary inputs in time and in adequate quantities and helped by way of marketing assistance, the small scale entrepeneurs would do well in their units. It is necessary that small industries be given training in management and also periodical refresher courses, to make their knowledge of management uptodate.

The authorities should take a pragmatic and imaginative view of the whole situation to restore health to sick units. A bold policy of a package of liberal assistance is necessary to achieve this end. Those charged with helping sick units should bear in mind that the small scale entrepreneur makes up for lack of equity capital by staking his very existence, reputation and career in starting his unit. In short, he brings money from home and from relatives and friends and even by pledging the jewels of his wife. In view of this he deserves the sympathy and help of financial institutions and promotional and regulative departments.

While implementing the programme of rehabilitation of sick units in the small scale sector the Government and other institutions should declare a moratorium on repayments and reschedule the repayment of loan instalments and also interest. Besides, the interest rates should be slashed to the minimum so as to help the nursing of the sick units. A liberal and timely supply of raw materials and timely sanction of loan and other facilities by the lending institutions, some sort of marketing assistance and other help will result in saving the sick units. ☐

BOOKS

A Successful Business Community

The Nagarathars of South India by S. Chandrasekhar ; published by the Macmillan Company of India Limited, Madras, 1980 ; Pp. 158. Price Rs. 50.

THE eminent social scientist and demographer Prof. S. Chandrasekhar, presents here an introductory essay and an extensive bibliography on the Nagarathar community in India and South-East-Asia

The community's homeland is Chettinad, which is in the Ramnad district of Tamil Nadu. The Nagarathars are a small sub-caste and popularly known as Nattukkottai Chettiars. Highly enterprising and influential, they are well known for their business acumen and philanthropy. They have emigrated to Burma, Sri Lanka, Singapore, Malaysia, Indo-China, Indonesia and Mauritius and have distinguished themselves as successful businessman and bankers. They have played an important role in the economic development of these countries.

The introduction, touching upon some of the highlights of the community, makes interesting reading. The 100-page bibliographical material in English, classified under seventeen sections, has been collected from various libraries in India and abroad and relates to the economic social and religious activities of the community in India and South-East-Asia.

The community's association with one or the other of its nine temples located in and around the villages of Chettinad has been dealt with in some detail. But such aspects as its average small family size and sex ratio which are of interest to a social scientist have only been referred to here. The author's forthcoming second volume which is to provide a comprehensive social survey of the community would be welcome

R. M. Bhatt

Unemployment in Karnataka

Unemployment in Karnataka, South India, Franklin C. S. Vivekanand, Acta Universitatis Upsaliensis, Uppasala Studies in Economic History, 19, Uppasala, Stockholm, 1979, pp. 176 (price not mentioned).

EMPIRICAL studies on unemployment in the context of development strategies are generally very rewarding, but the study under review is special in many ways. The analysis being a part of doctoral dissertation submitted at the Uppasala University reveals rigorous application of research methodology with clarity, objectivity and constructive comments. The excellence of research has however been marred by poor proof-reading.

The empirical data for the study have been collected from a sample of 6,009 households consisting of 34,843 members dispersed in urban and rural sectors of the 19 districts in Karnataka state. The results of the enquiry have been analysed with regard to differences in employment relating to religion, sex and age. The survey indicated that 28 per cent of the labour force in the state covering both the rural and urban areas were unemployed, 38 per cent were seasonally employed and 34 per cent fully employed. Of the total male labour force, 9.5 per cent were unemployed, 44 per cent seasonally employed and 46.5 per cent were fully employed. The investigation showed that 34.4 per cent of the labour force in urban areas were fully employed, 18.7 per cent were seasonally employed and 46.9 per cent unemployed. In rural areas, the proportion of seasonally employed labour force is higher, though the levels of full employment and unemployment both have been lower : 33.2 per cent seasonally employed and 21.1 per cent were unemployed. It is interesting to note that the unemployment ratio of the scheduled castes in Karnataka had been lower than 'other Hindus' and Muslims both in rural and urban areas.

The publication has raised several important points for consideration by the Indian planners. Chapter II which discusses the concepts of unemployment and methods of measuring the same has very well highlighted the confusion prevailing about underemployment and disguised unemployment. While dealing with the efficacy of Employment Exchanges (Chapter VI) the author has mentioned that the services rendered by the Employment Exchanges are ineffective (p. 105). Discussing the employment oriented economic policy (Chapter VII), the author has highlighted the persistent bias towards adoption of the capital—intensive methods (p. 117), and the insignificant results of 'general development' programmes towards employment generation in comparision to the investments made (p. 121). While indicating the various factors which have created difficulties towards employment generation, it has been stated that 'lack of political stability due to groupism in the ruling party or the increasing influence of the opposition parties wedded to different theories of economic development is yet another deterrent factor in effective implementation of the plans" (p. 126). This brilliant research study runs on sterotyped lines while suggesting the 'Appropriate strategy of Employment Creation' Chapter VIII).

Ganga Madhava Rao

Employment Planning

Employment Planning for the Rural Poor—The case of Scheduled Castes and Schedued Tribes by P. Hanumantha Rayappa and Deepak Grover, Population Research Centre, Institute for Social and Economic Change, Bangalore, Sterling Publishers Pvt. Ltd., New Delhi, pages xi+114, price Rs. 45.

POVERTY itself is a relative term. The book under review also says so in so many words but gives no definition either of poverty or of the concept of the 'weaker sections' of the community from the conceptional and operational points of view.

The book is, in fact, based on a rehashing of data from secondary sources, very largely from the Census

Reports. It comprises six chapters spread over 44 pages of text; 35 tables running into 62 pages; 14 acknowledgements for 'debts of gratitude', etc., etc. The treatment of the subject matter is superficial. May be it is because of a vast canvas and a heterogenous mix of population groups covered in a short space. It touches upon issues but does not delve in them. Tribal sub-Plans, for example, are the Planning Commission's well-thought out and ambitious recipe for the socio-economic development of scheduled tribes and the ills that afflict them. However, the chapter on 'Review of Employment Schemes', of the book has just one sentence statement on tribal sub-Plans. It reads: "The Tribal sub-Plans are meant exclusively for them and are expected to cover two-thirds of the scheduled tribes population".

On the subject of employment planning for scheduled castes and scheduled tribes. the raison d'etre for the writing of the book, the authors have come up with no operational strategy or alternative framework. They seem contented by merely pointing their finger at some of the problems. Instead of concrete suggestions we come across statements like: "Strategies have to be devised", redistribution measures... mentioned in the Sixth Plan document should be implemented", etc. etc.

While the co-authors have reviewed programmes, such as, MFAL, RWP, CSRE and PIREP, which have either already been wound up or merged with other programmes, ITDPs of the Tribal sub-Plans find no place *per se* in their review. Nor have they anything to say on the Government's latest strategy of Special Component Plans for the economic development of scheduled castes. In fact, after going through the book, one gets the impression that the grip of the subject that the co-authors show in the first four chapters, in which they have neatly built-up the socio-economic profile of scheduled castes and scheduled tribes in the country, is just not there in the latter two chapters.

Some of the observations made in the book do merit attention. To quote one such observation:

> "More important than providing better job opportunities, the choice of remunerating them (the weaker sections) better for their hard labour assumes greater significance."

The chief merit of the book lies in its bringing at one place basic data on scheduled castes and scheduled tribes and building up a visual profile of their conditions in the country. This is helpful in understanding the pains and problems of almost about one third of our population which is also the poorest of the poor. The book is remarkably free from printing mistakes Its get-up is good The jacket is eye-catching

R. K. Parashar

Reference Book on media information

Mass Media in India 1979-80. Publications Division. Ministry of Information and Broadcasting, New Delhi. Pp. 273, Price Rs. 22.

IT is second edition of a book dealing extensively with various governmental and non-governmental mass media organisations functioning in the country. Compiled by the Reference and Research Division of the Information and Broadcasting Ministry it is the only publication of its type giving in detail the history of different media in India and their present position. Inclusion of new topics like media and the law of contempt, libraries and information dissemination, periodical journalism and news agencies have greatly enhanced the usefulness of this edition. 1979 being the year of the child a special chapter on media and the child has also been added.

A number of chapters have been written by eminent persons in the field. This gives the publication a much wider view of the media set-up in India and does not necessarily reflect the official point of view.

Like the first edition it is a standard reference book for students and those engaged in different information media.

G. C. Rangrass

Project Evaluation

Project Evaluation Cirteria and Cost-benefit Analysis, edited by K. Puttaswarmaiah: Oxford & IBH Publishing Co. New Delhi 1980: pages 159; Price Rs. 50.

The book under review contains ten essays contributed by seven writers whose credentials for the task have been well acknowledged. For economic development it is necessary to select only those projects which are not only economically good but also socially acceptable. The choice of projects should satisfy the norms of cold calculations and efficient execution. It is in this background that the book under review "Project Evaluation Criteria and Cost-Benefit Analysis" is a significant contribution to the available literature.

Chapter I highlights the multi-dimensional nature of the problem. The evaluation criteria for public programme should encompass performance structure, procedures and motivations of the existing administrative constraint. Chapter II deals with the issues relating to orientation. Chapter III suggests certain concrete steps in the evaluation of the projects. Issues in the Methodology of evaluation of projects with large social contents have been brought out in Chapter IV. The treatment is quite lucid and helpful for an evaluator. Next three Chapters deal with household approach, consumer's surplus approach, national accounting system, social costs and quality of life.

In Chapter VIII, measurment of cost-benefit in education and transport sector has been attempted. Chapter IX attempts a general assessment of Little and Mirrlees Techniques. It contains useful comments on the problems of numeraire, social pricing of labour, shadow wage rate, accounting prices of goods both traded and non traded. The last chapter is a case study on a sugar project evaluation.

The book is an exceptionally well-integrated study with imaginative set of proposals and suggestions. It is a useful addition to the available current literature on the subject and can be profitably used by students as well as planners and administrators. No future examination of project evaluation and cost-benefit analysis should fail to cite this remarkable work.

Mohammad Iqbal

Vartha

WE have received a copy of the inaugural number of Vartha, a bi-lingual (English-Hindi) biannual published by the Bhartiya Arthik Shodh Sansthan, Allahabad. Prof. Mahesh Chand is the Chief Editor.

TRENDS

Credit to Palmyrah Workers

IN Kanyakumari District in Tamil Nadu there are 19,848 households engaged in palmyrah tapping and the wealth generated is of the order of Rs. 12 crores per year. This is revealed in a survey conducted by the Palmyrah Development Society. The Society is engaged in activities for the socio-economic development of the palmyrah workers. Through its own development and welfare schemes, the Society has helped 1000 workers during 1980 to avail of credit from nationalised banks at 4 per cent interest per annum. The Small Farmers Development Agency and Banks are co-operating with the Society in this venture as the Society does the follow up work. □

Instrument for Stimulating bone Healing

An instrument for stimulating osteogenesis and bone repair is being manufactured by the UP Electronics Corporation Ltd. Lucknow on the basis of knowhow and details provided by Dr. Satya Nand, Prof. and Head, Department of Orthopaedic Surgery at the Medical College. It is meant to supply direct current of 0uA at the fracture site through a stainless steel electrode.

Till now, 54 patients, including those of congenital pseudoarthrosis and bone defects have been successfully operated upon in the Department. Its use has been recommended in the following conditions : (a) all types of ununited fractures—simple or compound : (b) all types of bone defects due to dysplasia cysts etc. (c) congenital pseudoarthrosis and (d) to hasten fracture healing in fresh cases. □

Seismic Surveillance Stations in NE India

THE Regional Research Laboratory, Jorhat, in collaboration with the National Geophysical Research Institute, Hyderabad, has set up five seismic surveillance stations at Khonsa (Arunachal Pradesh), Yaongyimsen and Kohima (Nagaland), Kaziranga and Jorhat (Assam), as a part of the programme on seismic surveillance, for the segment of seismically hazardous North East India. The programme inter alia aims to help in developing pragmatic programmes to take advance action to avoid destructive effects of earthquakes. □

Himachal's Bid to Save Forests

TO check ever-increasing incidence of illicit felling of trees, the Himachal Pradesh Government has decided to nationalise the regeneration and exploitation of forests. This will be done in a phased manner in the next three years.

This important decision of the Government is in fact a first step toward the "Save Forests" crusade launched by Chief Minister Thakur Ram Lall. At the same time, the State has launched a crack-down on the illicit felling and smuggling of forest produce. Police flying squads are inspecting forests and timber stacks in surprise raids to bring thieves and smugglers to book by detecting illegal carriage of timber and its sale. □

The State Forest Corporation is also being reorganised and strengthened to enable it to play a befitting role in the gigantic task consequent upon nationalisation. Once forests are nationalised the Government or the Forest Corporation alone would buy wood and forest produce from forests including private forests and export them outside the State. □

Utilisation of Irrigation Potential

TAMIL NADU, closely followed by Andhra Pradesh and Karnataka, leads in the utilisation of irrigation potential to the maximum, according to an official survey conducted by the Union Ministry of Agriculture.

The survey has stated that the underutilisation of the irrigation potential is between 1.5 per cent and 3 per cent in the case of these States. Those with the worst record are Maharashtra, Gujarat, Assam and Bihar.

The difference between the irrigation potential created and the actual use of water is known as the "lag in utilisation". In the case of Maharashtra, Gujarat, Assam and Bihar, the lag is 30 to 40 per cent. The average lag for the country is placed at around 10.5 per cent.

The causes of under-utilisation are often traceable to inadequate planning of a project due to the non-provision of essential ingredients of irrigated farming.

The main factors preventing water utilisation are said to be the absence of water courses and field channels, poor maintenance of existing channels, inadequate control of structures, inadequate drainage, water loss through seepage and the failure to undertake land-levelling and propagating proper cropping methods.

The offical study points out that the lag in irrigation potential utilisation has gone up from 2.5 million hectares in 1978 to 2.9 million hectares in 1979. The problem is sought to be solved by asking the State Governments to construct channels up to a block of eight hectares as against up to 40 hectares. □

Crop Insurance Scheme in Haryana

THE Haryana Government has introduced a crop insurance scheme in five districts of the State, namely, Ambala, Karnal, Sirsa, Jind and Kurukshetra. Announcing this in Chandigarh recently, Shri Shamsher Singh Surjewala, Agriculture Minister, said that the State Government would get Rs. 50 lakhs for this from the Centre for the scheme.

Shri Surjewala said that paddy, wheat and bajra were covered under this scheme and the Government was considering inclusion of sarson and toria crops also.

Under the scheme, a farmer will pay Rs. 22 per hectare per crop as premium to get his crop insured against the damage owing to natural calamities. □

P.M. for More Oilseed Production

PRIME MINISTER Indira Gandhi has advised State Governments for a rapid increase in oilseed production, especially groundnut, to meet the country's edible oil requirements. She has suggested introduction of groundnut as an irrigated summer crop to boost production with the available acreage.

In her special letter to some Chief Ministers the Prime Minister has expressed the desire that the Chief Ministers take up this programme under their personal charge. □

❊ **The British
puff cigars**

❊ **The Russians
wear chappals**

❊ **The Yugoslavs
sip tea**

❊ **The Germans
drink coffee**

❊ **The Americans
sport 'kurtas'**

❊ **The Iranians
have a sweet
tooth for sugar**

❊ **The Iraqis
relish 'biryani'**

❊ **The Hungarians
are tuned
into pop music**

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wears a big smile***

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STEP BY STEP

Tartaric acid from Tamarind Leaves

REGIONAL Research Laboratory, Jorhat has demonstrated successfully the process for production of tartaric acid from tamarind leaves to M/s. Karnataka State Forest Industries Limited, Bangalore at the Central Food Technological Research Institute, Mysore. Tamarind leaves contain 4 to 10 per cent of tartaric acid depending on location of tamarind plantations and the quality of the leaves.

The tartaric acid has a wide application in pharmaceutical and food industries. At present the entire demand of our country of over 500 tonnes per annum is being imported.

The conventional process for its manufacture is as a by-product from wine industry. But, in our country very little wines are produced, therefore, it is not possible to exploit this source. However, an alternate source for the production of tartaric acid is tamarind leaves.

The process know-how package has been transferred to the Bangalore-based company. Karnataka State Forest Industries Corporation Limited has already initiated the procurement of the site of the proposed factory at Gottipura. In the first phase, the factory will produce 100 tonnes of tartaric acid per annum. It is expected that the factory will go into full stream within the first quarter of 1981. □

Kerala Motivator shows the way

WHEN Shri R. Sivarama Pillai joined the Primary Health Centre as Block Extension Educator only 1443 couples, out of a population of 1.15 lakh, had accepted sterilisation. He studied the situation and established close contact with the people. He organised meetings and discussions, involved Mahila Samaj etc. and was able to motivate 8383 persons that is 65.9 per cent of the couples with 2 or more children, to undergo sterilization during five years from 1975 to 1980. □

Charcoal aids water decontamination

STUDIES carried out by the Central Food Technological Research Institute, Mysore (CFTRI) have established that wood charcoal which has been traditionally used for purification of water can also be used successfully for the removal of certain pesticide residues from water. The decontaminated water so obtained can be rendered free of bacteria by treating it with an antibacterial agent.

The particle size of wood charcoal is a crucial factor in the removal of pesticide residues from water, and hence this has been determined. Residues of 20 pesticides, including those of BHC, DDT, Dieldrin, Malathion, Methyl Phosphomidon have been removed during studies using wood charcoal powder.

A percolator unit has been evolved by the institute for decontamination of drinking water from pesticides and bacteria in households. This unit can be scaled up suitably for use in restauants and hospitals.

Scientists-adopted Villages achieve Self-sufficiency

AN integrated rural development programme launched by the Ramnad District Collector at Kunnakudi and Nemam, two villages adopted by the scientists of the Central Electro-chemical Research Institute, Karaikudi, have attained the distinction of becoming self-sufficient in one year. The experiment of achieving rural uplift through starting of small industries and introduction of modern methods of agriculture has paid dividends. The Collector is known to have mentioned that there was no unemployment problem in the two villages, which had a total population of 6,000. Six small-scale industries, a match unit, a fodder development unit, a plastic bag manufacturing centre, a unit to manufacture 'Viboothi' and sandal paste and a cashewnut processing unit have been started, all requiring only small investment.

They had also launched an orchard cultivation scheme in a 45 acre plot. Implementation of all the schemes with local cooperation has helped in improving the economic condition of the people.

Three more villages, Thirukolakuli and two of its hamlets in Thiruppathur Taluk, have been adopted last year and a number of schemes based on local potentialities and needs are being launched. A fish farm in 50 acre plot was contemplated.

Industrial Alcohol from Mahua Flowers

THE Central Food Technological Research Institute (CFTRI), Mysore has prepared a feasibility report on the manufacture of industrial alcohol from Mahua flower at the request of the Gujarat State Forest Development Corporation Limited. The products that could be made from Mahua flower include potable alcohol, rectified spirit, baker's yeast, vinegar and concentrated sugar syrup. Costwise, the rectified spirit from Mahua flower will not be economical as compared to the product prepared from molasses unless the raw material cost is brought down and the byproducts are gainfully utilised.

Vitamin-E from wheat germ

THE Central Food Technological Research Institute, Mysore has standardized a process for the extraction of oil from wheat germ and producing vitamin-E concentrate from the oil. The process enables utilization of the germs, a valuable source of nutrition, which is invariably lost along with bran during wheat milling. Work has been carried out on sponsored basis.

Giant Leucaena for Fuel

THE Regional Research Laboratory, Jammu, carried out introduction trials for growing the Giant Leucaena, in its Field Research Station, with a view to exploring the possibility of its cultivation as a firewood crop in the region. Preliminary investigations reveal that the growth rate of Leucaena varities in the region was comparable to that in other receptor countries.

Tomorrow's Parents—Today

Population Education for the Youth

N. R. Laskar*

YOU must have discussed threadbare the many questions which are relevant to the growth of youth of today who will become tomorrow's parents.

The fact that in our total population there are 124 million boys and girls between the ages of 15 and 24 years brings into sharp focus two important things—(a) high dependency ratio and (b) danger of population growing at a faster rate. We need not be frightened by this situation. What we have to do is to see that the rate of socio-economic progress in the country grows at a faster pace and the youth of today is exposed effectively to population education. Both the programmes have been taken up on a massive scale in a sustained manner. From the point of view of economic growth, we have indeed taken very rapid strides. Population education has, however, not spread as fast as it ought to have spread. Induction of new values in a culture takes time. There is need for greater social backing to economic progress and in this task all organisations, official and non-official, have a role to play. While population education, is being introduced in the formal system of education, voluntary agencies can help us greatly in promoting it through non-formal channels. The task is gigantic. The rate of drop-outs from schools is quite high. We are aware of this. We are investing large sums of money in population education through the formal education system. We are making equally large investments in education through non-formal channels like the agriculture extension infrastructure and the institutes of training trade union leaders in the organised sector of industry. I have no doubt that with the enthusiastic participation of the people in developmental programmes in general, and in health care and family welfare programmes in particular, and with the spread of education, both through formal and non-formal channels, we will, in the near future, be reaching a siutation where the small family norm may become a way of life with our young people.

Sex education should be imparted to students in a subtle manner. At the same time, their health base should be strengthened. If the people's health improves, it infant mortality reduces, if mothers do not have to bear the pangs of too mahy pregnancies and if adolescents imbibe population values, there is no doubt that India's progress, and the progress of every family will grow faster. At present it is being neutralised to a considerable extent by large increases in our population. We are trying to arrest this phenomenon. We are trying to do so with the willing participation of the people in health and family welfare programmes. □

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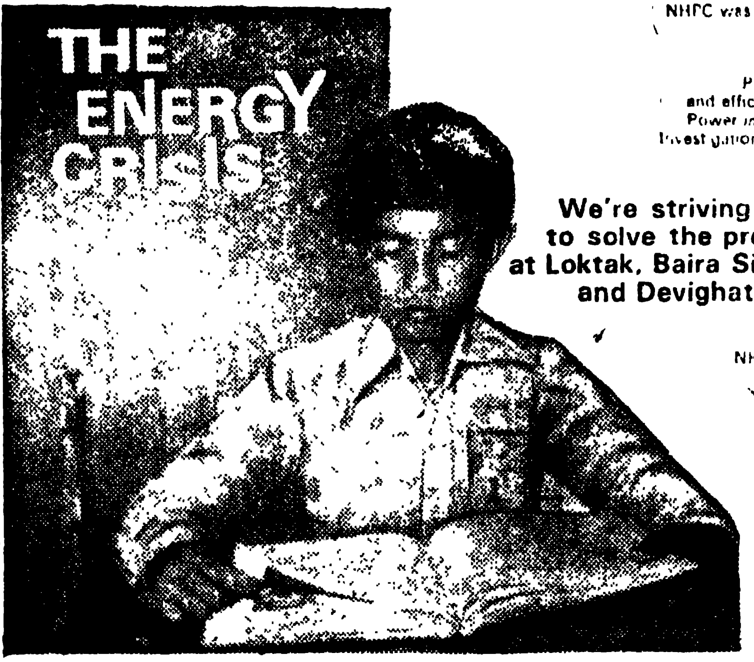
*Minister of State for Health and Family Welfare. From his Valedictory address at the seminar on "Tomorrow's Parents—Today" organised by the New Delhi Family Planning Association recently.



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Nimpith :

The Nucleus of Integrated Rural Development

Biren Saha*

The extension activities of the Ashram include lending of agricultural implements and transferring of improved farming technology to the poor farmers.

AMIDST lush green paddy fields interspersed with coconut and date-palm trees Nimpith village presents all the familiar features of a South Bengal countryside. But what gives it a unique place among the hundreds of problem-stricken villages of Sunderbans is its big stride towards the path of a socio-economic regeneration. Here is a village where a multi-pronged attack on poverty, illiteracy and unemployment is on. And given the proper impetus, it could usher in a new era of economic prosperity in entire Sunderbans, the most backward region of west Bengal.

It all started 20 years ago under the inspiring leadership of a dedicated hermit, Swami Buddhananda who made this once sleepy hamlet the centre of his selfless service to the cause of the downtrodden. In 1961, he founded Shri Ramakrishna Ashram and with the active cooperation of a band of devoted workers established a network of schools in the area. A Health Centre was also subsequently set up. But it was soon discovered that educational facilities and medical aid were not enough. Maladies were many and naturally had their origin in poverty. A vast majority of the population of the village, comprising mostly Scheduled Castes and Scheduled Tribes, were peasants living below the poverty line. Agriculture was monocropped owing to the high salinity of the soil. Scientific farm technology was yet to reach them. As a result, small and marginal farmers found it difficult to eke out a living. No other sources of gainful employment like pisciculture and cattle rearing developed in the village.

In a bid to solve these problems, the Ashram started an Agro-Development Centre. The purpose was to help the local farmers with improved agricultural inputs and implements. The centre introduced double-cropping, beginning with sunflower and groundnut cultivation in order to encourage the local farmers go in for a rabi crop. The Ashram also succeeded in persuading the State Bank of India to open a branch at Nimpith so that easy credit facilities could be extended to the small farmers.

To take care of the vocational training needs of the cultivators, fishermen and cattle-rearers, the Ramakrishna Krishi Vigyan Kendra was established on May 2,1979. while the Rs. 20 lakh project is yet in the formative stage and the imposing building complex still under construction, a team of twelve dedicated scientists led by Dr. K. L. Bandyopadhyay have made quite a good start. Socio-economic survey has been conducted by them in ten villages out of the 16 selected for the purpose. In all, 1,228 farming families, residing in these villages, have been surveyed and their training needs identified. About 1,000 farmers and fishermen have been imparted training both at the Kendra's campus and in the villages around Nimpith. The duration of the training varied from one day to one year and the courses included such vital subjects as improved Kharif rice production technology, summer cultivation of field crops and vegetables, transplantation of Boro paddy, intensive fish farming and fish breeding, poultry management, animal husbandry, utilisation of pumpset and so on. The methods of imparting and acquiring these skills have been taught through work experience.

Two other important activities of the Nimpith Krishi Vigyan Kendra in transferring improved technology to the cultivators of this backward area are demonstrations and trails by the scientists at the Kendra's own farm as well as the farmers' fields and organisation of farmers and farm youths to encourage a collective action for scientific farm management.

The Kendra has its own 21 acre farm where instructional farm activities are carried out for the benefit of trainee cultivators. Sixteen acres of land have been brought under high yielding varieties of Kharif paddy like Masuri, Pankaj and Patnai Vegetables have also been grown in quite a large area of the Ashram land. The Ashram had earlier started a fishery unit with seven ponds having a water area of five acres. This has now been taken over by the Krishi Vigyan Kendra to promote scientific methods of pisciculture. Cultivation of air-breathing fish has been taken up in a 10-decimal tank for training purposes. Training in dairying has been facilitated by

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*Assistant Editor *Dhanadhanye* Bengali Yojana

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the Ashram's mini dairy unit set up in 1976. Recent addition of four cross-bred cows has brought the total strength of the dairy cattle to 14. The Kendra also maintains demonstration units of poultry, goatery and piggery. The Ashram has a bee-keeping centre as well.

Demonstration trials at the Kendra's farm are not all. The scientists of the Nimpith Krishi Vigyan Kendra have taken a vow to reach the improved farm technology to the peasants in 30 villages adjacent to Nimpith. Their extension activities include adopted trials at the farmers' fields, distribution of improved seeds to the common tillers, hormone spraying on the orchards and mango plants of the farmers, distribution of rock phosphate to the deserving cultivators, lending out agricultural implements to farmers and organising village meetings to discuss improved methods of farming and aquaculture.

A recent addition to the Kendra's work has been the Lab-to-land programme. Under this programme, sponsored by the ICAR in its Golden Jubilee year, 91 farm families have been adopted by the Kendra for the purpose of transferring technology to the poorest farmers, fishermen and cattle rearers. Individual farm plan in respect of each of these farm families has been drawn by the Kendra's scientists preceded by a survey and accordingly 43 farmers have been involved in kharif high-yielding paddy, Boro paddy and wheat cultivation, 16 farmers in mini poultry units, 20 farmers in composite fish culture and the rest in goatery and orchard management. In addition to the inputs worth Rs. 500 per family per year what these farm families get from the Kendra are the direct involvement and continuous free services of the scientists of the respective discipline at their own fields and farms. During my recent tour to Nimpith, I had had the opportunity of seeing for myself the farms of three such adopted families at Sherhangampur village near Nimpth. It is really an experience to find the bare-foot scientists of various disciplines making themselves available at the poor farmer's door steps to demonstrate to them improved farm practices through actual work experience. Such visits of the scientists at Nimpith Krishi Vigyan Kendra to both nearby and distant villages are a regular feature of their work in tackling the day-to-day problems of the poor peasants like raising a second crop, the use of fertilizer, controlling plant diseases and poultry-keeping. Lab-to-land project has provided the Krishi Vigyan Kendra a better opportunity to transfer technology to the poor farmers through practical trial method.

The Ashram maintains demonstration units of Poultry, Goatery and Piggery.

For unemployment landless farmers and rural youths, mere training in scientific management of agri culture, fishery and animal husbandry is not enough to make them stand on their own feet. Employment opportunities should have to be created for them to make their training meaningful. It is one of the major functions of the Kendra to help them get self-employed. A few poultry and dairy projects initiated by these trainees have received technical guidance from the Kendra and finance from the Nimpith branch of the State Bank of India.

Another worthwhile projet of the Ashram, as part of its integrated rural programme for Nimpith and surrounding areas, is the establishment of an Agricultural Marketing Centre at a cost of Rs. 18 lakhs. The Centre, sanctioned by the People's Action for Development (India), an undertaking of the Union Agriculture Ministry is to provide shops, godowns, selling sheds and stalls for the small farmers and fishermen and thus safeguard them from the exploitation of the middlemen.

Other important welfare schemes of the Ashram include a large-scale nutrition programme for school children, a library-cum-museum and a big hostel building for scheduled caste and scheduled tribe girl students.

A vast development complex has thus grown up at Nimpith complete with schools, hospital, primary health centre, water supply scheme, Post Office, telephone exchange and guest house. Today a new hope spins around Nimpith which has turned out to be the nucleuous of comprehensive rural development for over 30 neighbouring villages. Development is no doubt a long-drawn process. But once this is started and its pace is kept up, the goal is ultimately reached. A visitor to Nimpith will have an unmistaken impression that this backward area is not far away from reaching this goal. ☐

Medicinal Plants

CULTIVATION of Unani medicinal plants has shown encouraging results. All the 40 plants of Gulnar Farsi transplanted in the middle of July this year in the herb garden of Survey of Midicinal Plants Unit at Aligarh have shown luxuriant growth.

'Gulnar Farsi' is an important Unani drug used in various preparations for the treatment of infantile diarrhoea, dysentery and 'bars'. The plant has astringent, desiccant and styptic properties.

The paste of 'Gulnar Farsi' is useful for the healing of wounds. It strengthens gums and teeth and is used for the treatment of hernia also. ☐

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yojana

ONE RUPEE

BUDGET AND PLANNED DEVELOPMENT

AGRICULTURE AND INDUSTRY IN SIXTH PLAN

Volunteer health workers supplied with drugs regularly are proving a great asset in combating diseases like malaria

Health for All by the Year 2000

Dr. H. Mahler*

ONLY those who celebrate World Health Day in the year 2000 will be able to judge if those in the generation that preceded them were realists or dreamers when, in 1977, they decided in the World Health Assembly to launch the movement for "Health for All by the Year 2000". Few could have foreseen then to what extent this move would fire the imagination of people throughout the world. That it did, showed how timely the call was to bring about a social revolution in community health. Old ways of dealing with health problems had proved to be highly inadequate in countries at all stages of development, and the inequalities in health status and in the distribution of health resources throughout the world were intolerable.

What is "Health for All"? The World Health Assembly referred to it as the attainment by all the people of the world of a level of health that will permit them to lead a socially and economically productive life. This means simply that the level of health of individuals and communities will permit them to exploit their potential economic energy, and to derive social satisfiaction of being able to realize whatever latent intellectual, cultural and spiritual talents they have.

"Health for All" does not mean that in the year 2000, doctors and nurses will provide medical repairs for everbody in the world for all their existing ailments; nor does it mean that in the year 2000 nobody will be sick or disabled. It does mean that health begins at home, in schools and in factories. It is there, where people live and work that health is made or broken. It does mean that people will realize that they themselves have the power to shape their lives and the lives of their families, free from the avoidable burden

(*continued on cover III*)

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* Director General, World Health Organisation. Message for World Health Day, 7 April 1981.

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Editorial

The New Textile Policy

THE NEW TEXTILE POLICY has recently been announced by the Union Minister of Commerce. It gives priority to the handloom sector with encouragement to the Khadi industry. It seeks to regulate the powerloom sector, marginally increase the weaving capacity in the mill sector and also modernise this sector, increase the production of controlled cloth, continue the multi-fibre system with dominant position to cotton yarn and to aggressively expand exports.

Though the new policy is not dramatically different from the old one, its attempt to integrate all segments of the textile industry is noteworthy. It has however, attracted criticism for its heavy reliance on the handlom sector. While this sector provides livelihood to a large number of people, it is unable to stand on its feet due to its technological inefficiency. Contrary to the earlier objective of converting the handlooms progressively into powerlooms, the number of the former has been increasing and the latter has grown indiscriminately challenging both the mill and handloom sectors. In spite of the government patronage from the fifties, the handloom sector suffers alternately from shortage of yarn and accumulation of unsold stocks. In spite of the subsidy, the price of handloom cloth is still high. The attempts to bring the handlooms into the cooperative fold have also not made any significant headway. It is doubtful whether the handloom sector will be able to produce the quantity of cloth allotted to it, and at reasonable prices. If there is difficulty in this regard, the policy will have to be adjusted so that the consumers do not face any shortage or high prices.

When the demand projection of cloth during the sixth Plan period and the need for exporting more cloth against stiff foreign competition are taken into account, the proposed expansion of mill sector's weaving capacity may not be adequate. It is hoped that in this aspect also the policy would be implemented with the required flexibility. The equipment of mill industry as a whole, not to speak of the 'sick' mills, is antequated when compared to that of advanced countries, and more liberal provision is necessary for its rapid modernisation. Similarly, the excise duties on the mill cloth, especially on the indigenous man-made fibre cloth, need to be reviewed both from the points of view of the industry and the consumers. While the decision to increase the production of controlled cloth is welcome, the present loopholes in the distribution system which prevent it from reaching the poor people, should be effectively plugged. The provision for the growth of sericulture industry, which is also labour-intensive, is also not enough. This sector should be given all support to modernise its technology and expand its processing capacity.

In short, the textile industry in India faces the contrary pulls of humanitarianism and market forces and the government has to perform a delicate balancing act. □

Special Article

The Budget and the Sixth Plan

Dr. J. N. Sinha*

THE BUDGET OF 1981-82 has been widely acclaimed as a balanced and careful exercise in framing the fiscal policy. It has indeed many welcome feature from the point of view of both growth and equity. It has, however, to be assessed in its totality in terms of its contribution to the objectives of the Sixth Plan and success of the economic policies designed to implement them.

It may be readily stated that the budget is oriented to meeting the objectives of the Sixth Plan some of which are given below :

(i) A significant step up in the rate of growth of the economy;

(ii) A progressive reduction in the incidence of poverty and unemployment;

(iii) A speedy development of indigenous sources of energy, with proper emphasis on conservation and efficiency in emergy use;

(iv) Strengthening the redistribution bias in favour of the poor contribution to a reduction in inequalities of income and wealth.

The Sixth Plan provides for a total outlay of Rs. 97,500 crores during the period of the five years 1980-85. The plan outlay in the budget for the first year i.e. 1980-81 was estimated at Rs. 14,593 crores and that in the budget for 1981-82 Rs. 17,479 crores. Thus, the combined plan outlay in the first two years works out to roughly 33 per cent of the proposed plan outlay. In purely financial terms this appears to be more or less satisfactory, even though higher outlays in the initial years would have imparted a momentum for more tangible growth of the economy in real terms in the subsequent years. The Plan targets were originally fixed in terms of 1979-80 prices. The wholesale price index in 1980-81 has recorded a rise of 13.5 per cent over that of 1979-80. While it is not entirely appropriate to deflate the plan outlay by wholesale price index, the rise in prices does imply that the plan outlay in 1980-81 would be lower than the provisions in the budget and if the prices rise further in 1981-82, a point to which I shall return later, the plan outlay in real terms would turn out to be significantly lower than what is indicated by the financial provisions.

The total expenditure for 1981-82 is estimated at Rs. 24,871 crores Out of this, Rs. 15,100 crores will comprise non-plan expenditure and the rest i.e. Rs. 9,771 crores will be the support from the Central budget for the Plan in 1981-82. Out of this amount Rs. 6,309 crores will be allotted as budgetary support for Central Plan and a sum of Rs. 3,462 crores will be utilised as Central assistance to the Plans of the States and the Union Territories.

The non-Plan expenditure appears to consume a disproportionately large fraction of the total expenditure in the Central budget, but if allowance is made for development items on non-plan account, the development expenditure works out to 60 per cent of the total budget. There may still be a case for reduction in nondevelopmental expenditure, but considering that a large part of it is committed expenditure comprising such items as Defence expenditure which acounts for Rs. 4,200 crores and interest payments of Rs. 3,123 crores, the scope for reshuffling the expenditure is at best limited. This implies that any step up in the plan expenditure above the proposed limit would require greater tax and non-tax efforts to mobilise additional resources.

Non-tax Resources

Among the non-tax measures that could be considered for mobilising additional resources, special mention may be made of two items (1) cut in subsidies on food, fertilisers and foreign trade; and (2) larger surplus of public sector undertakings. Fertiliser is becoming an increasingly import input in agricultural production. This seems to lend some justification for the increase in fertiliser subsidy from about Rs. 466 crores in 1980-81 to Rs. 679 crores in 1981-82. However, it is to be noted that by far the major part of the fertiliser goes into the production on the large farms. The rate of return on fertiliser used is substantial and as it mainly acrues to the large farms, the subsidy is justified neither by consideration of growth nor by those of equity. The small farms could be protected by preferential treatment in the allotment of their share. Food subsidies have to be continued and perhaps extended so as to provide relief to larger sections of the rural population. The subsidies on exports however again do not have much justification. Exports have to be stepped up and trade surpluses have to be increased but this is to be done more by incentives and measures for increased efficiency in production and curbs on domestic consumption rather than a policy of across the board subsidies.

The case for increasing the surpluses of public sector undertakings has been under discussion for a long time. The recent hike in the prices of coal, power and petroleum products as well as in the fares and freights of the railways are steps in the right direction. A rational pricing policy of public sector enterprises is certainly overdue. Much however will also depend on the increased efficiency of these enterprises. The costs of these enterprises are unduly inflated by capacity under-utilisation of a large number of public enterprises. It is only partly due to the shortage of spares and components. Much of it is due to the lack of effective coordination among the various industries within the public sector. An integrated policy of output targets in such industries as coal, power, petroleum, steel, heavy engineering and transport may go a long way in improving the efficiency of these enterprises and generating surpluses even without any further step up in the prices of their products.

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Plan Priorities

The allocative pattern of resources is as important for the realisation of the Plan targets as the total Plan outlay in a particular period. The Finance Minister has rightly pointed out that "agricultural development with a special emphasis on the weaker sections is the centre piece of our development strategy. But the Sixth Plan also identifies some other areas which have become especially critical. The energy and transport system comprising such critical sectors as power, coal, oil, ports and railways requires massive investment if these sectors are not to become a constraint on economic growth". The amounts provided for the different sectors in the budget of 1981-82 seem to be broadly in accordance with the Plan priorities.

It has been clearly specified in the Sixth Plan that special weight must be assigned to those programmes which benefit the weaker sections. Following this objective the budget of 1981-82 reiterates the important role of the national rural employment programme. It provides Rs. 180 crores in the Central Plan for this programme and this is to be matched by an equal amount from the States. The budget of 1980-81 made a provision of Rs. 340 crores for the same programme which was to be provided by the Centre to the States both in the form of foodgrains and that in cash in order to facilitate the undertaking of productive works. The budget for 1981-82 follows the plan directive of 50 : 50 sharing by the Centre and the States. It is not quite certain how far the States will be able to raise the matching amount. However, even if they do succeed, the programme will provide for not more than 500 million mandays of employment or less than two million jobs which will cover a bare fringe of the problem of unemployment.

Another important measure conceived essentially as an anti-poverty programme is the integrated rural development programme. It will enable the poorest families to acquire productive assets, technology and skills as would make them economically viable. The budget provides Rs. 198 crores for this programme, as well as for special programmes such as desert development and drought prone area programmes. with an equivalent contribution from the States. It is expected that the integrated rural development programme will help three million families to go above the poverty line in 1981-82. Assuming a capital (outlay)-income ratio of 1.5 : 1, (as given in the plan) the budget provision would generate additional income of Rs. 270 crores or about Rs. 900 per family which implies additional monthly per capita consumption of Rs. 15 per month. This is clearly inadequate to raise the income of the bottom deciles to the cut-off poverty line monthly income of Rs. 76 per capita. Howeer, the Finance Minister has also stated that half of the term lending by commercial banks to agriculture and allied activities will be directed to the small and marginal farmers and agricultural labourers. Adequacy of credit is indeed an important instrument for raising the productivity of the rural poor. It will, however, do little to raise the incomes of the poor unless they have the material assets for development with the help of additional finance. The Central budget itself can do little so far as the distribution of land assets is concerned. It can however indirectly help by subsidising the distribution of non-land assets such as livestock and other material inputs such as water, seeds and fertiliser on a concessional basis.

Incentives

The budget also provides some relief to the middle income groups. The exemption limit for the payment of income tax is raised from Rs. 12000 to Rs. 15000 and the rate of schedule is restructured so as to provide some concessions to persons receiving income upto Rs. 30,000. As a result of these changes about 14 lakhs of taxpayers will go out of the income tax net and another 11 lakhs will get some tax relief. In an inflationary phase such concessions seem justified. However, an important question which arises is what is the corresponding relief to the rural poor. The Sixth Plan provides for a substantial extension of the public distribution system to insulate the rural poor from the effects of rising prices of essential commodities. The budget could make suitable provision for progress in this direction.

An important feature of the budget is the network of incentives which it provides to step up the rate of savings and improve the investment climate: There is an increase of ½ to 1½ per cent in the interest on various term deposits of the banks and a provision for national savings certificate which will carry an interest rate of 12 per cent. Further, to enable the large companies raise more of investment finance through their own efforts, the interest rate ceiling on debentures has been raised from 12 per cent to 13.5 per cent. The net impact of these measures on savings will, however, depend on the real post-tax interest rates. It would have been in order if the limit of tax exemption on interest income from bank deposits was raised from Rs. 3000 to Rs. 5000.

As a general measure to improve the climate for investment in industry it is proposed to reduce the surcharge on income tax payable by all classes of companies from 7.5 per cent to 2.5 per cent. Further, the standard list of industries which qualifies for specified investment related tax concessions has been extended so as to include 14 groups of industries such as electric fans, pressure cookers, glass and glass work etc. These are certainly not priority industries either for growth or for meeting the needs of the poor. The budget has come rather too soft on large industries. However, it has rightly extended the tax concessions to persons and companies engaged in the development of mineral oils and gas. The fiscal incentives to accelerate the development of renewable energy resources such as solar, bio-gas and wind energy will serve the energy policy announced in the Sixth Plan.

The budget announces aditional measures to implement the government policy of promoting small scale industry in the interest both of employment and broader development of entrepreneurship. First, the eligibility limit of investment related tax concessions is raised from Rs. 10 lakhs to Rs. 20 lakhs. Second. the exemption limit under the general scheme of excise duties concessions applicable to 72 excisable commodities is raised from Rs. 5 lakhs in terms of value of clearance to Rs. 7.5 lakhs. These changes seem to steps in the right direction, but the entire policy of the government towards small scale industries itself needs to be reviewed on several counts. First, not all small scale industries are capital saving. Second, many of these industries pay unduly low wages and exploit the working classes. Third, there is not enough check to ensure that they do not spring up from fragmentation of large enterprizes.

The budget of 1981-82 is the first budget which has not increased excise duties for raising general revenues. However, it contains several measures to rectify the balance of payments. It gives tax concessions to export oriented industries. On the other hand, it provides for across the board increase of 5 per cent in the auxilliary duties of customs on all items of imports. However, some of these items go as basic inputs into investment industries and the budget could provide for differential treatment in this regard.

Inflation

In the end, I will return to the major issue, namely, the extent to which the budget will successfully contain the inflationary pressure in the economy. As pointed out earlier, the total expenditure for next year is estimated at Rs. 24,871 crores as against estimated receipts of Rs. 23,061 crores leaving a resource gap of Rs. 1,810 crores. The various measures of additional taxation together with the reliefs offered will yield net additional revenue of Rs. 271 crores to the Centre. The uncovered deficit thus amounts to Rs. 1,539 crores. However, among the non-tax sources of revenue the budget claims credit for Rs. 800 crores from the sale of the much controversial special bearer bonds to mop up the black money in the next year. The estimate is perhaps based on the experience of the voluntary disclosure of incomes scheme of 1975. It is not known how much of black money has grown since then and how high is the competitive rate of return in the black market. There are, therefore, substantial reasons to doubt if the expected yield from the sale of special bearer bonds will be actually realised. If this scheme fails and there is no compensating mechanism for raising additional resources the budegtary deficit may rise substantially above the estimated figure of Rs. 1539 crores.

The budget deficit is only one aspect of the inflationary impact of government policy. The second and equally important element is the net bank credit to the government. It was substantially stepped up from Rs. 2,634 crores in 1979-80 to Rs. 4,160 crores in 1980-81. Its effects on prices were contained partly by the drawn-down on foreign exchange reserves and partly by reduction in the bank credit to commercial sector which followed the low rate of procurement of foodgrains and the slowing down of the rate of industrial growth. As the bank credit to commercial sector is expected to rise with industrial activity it will be necessary for the government to practise restraint in drawing upon the bank credit.

The foregoing analysis suggests that the budget of 1981-82 is a balanced one. It conforms in many ways to the priorities and policies envisaged in the Sixth Plan. The final outcome will however depend critically on the price trend. The government has to improve the administration of public sector enterprises in order that they make a sizable contribution to the budgetary resources. There is no gainsaying the fact that much depends on extent to which the fiscal discipline is combined with monetary discipline. ☐

Yojana in Urdu

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Sixth Plan: An Overview and Analysis

B. M. Bhatia*

THE SIXTH FIVE YEAR PLAN that has just been finalised envisages a total outlay of Rs. 172,210 crores and annual growth rate of 5.2 per cent. The public sector outlay has been put at Rs. 97500 crores and that of the private sector at Rs. 74710 crores. The total investment (gross capital formation) over the plan period will be Rs. 158710 crores calculated at 1979-80 prices. This is to be financed by domestic saving of Rs. 149,647 crores estimated at 1979-80 prices and net inflow of funds from abroad to the extent of Rs. 9063 crores. Thus country's dependence on foreign assistance for development though reduced to a little less than six per cent of the plan investment during the Sixth Plan, still continues.

Even on the domestic front, it may not be easy to reach the stipulated targets in respect of savings. Domestic savings are projected to grow from Rs. 23055 crores in 1979-80 to Rs. 35870 crores in 1984-85. As percentage of GDP at market prices, the saving rate is envisaged to increase from 21.2 per cent in 1979-80 to 24.5 per cent in 1984-85 implying a marginal rate of the order of 33.7 per cent over the plan period, 1980—85. Investment during the period has been planned on the assumption that a saving rate of that order would be available. If there is a shortfall on the target rate of savings, there will be further resort to deficit financing than Rs. 5000 crores that is already provided for in the plan estimates of the available resources.

The question arises whether it would not be more desirable to have kept the sights low and fix a lower rate of growth so that resort to deficit financing and foreign borrowing is avoided. On this the planners' view is : "it was found that given the initial capacity constraints, specially in sectors with relatively long gestation such as major irrigation, power, transport and steel, any growth rate during the sixth plan period above 5.2 would not be feasible; at the same time a growth rate of lower than 5.2 per cent or so would not even cover the basic minimum time bound programmes for fulfilling the economic and social objectives in agricultural and rural sectors including generation of employment." Thus the limit to growth in the present situation in India, in the opinion of the Planning Commission, is set by constraint of physical and not financial resources. So far as the latter are concerned, the needs rather than the financial feasibility are to determine the growth rate. This has been a major weakness of Indian planning in the past. In view of the past experience in the matter, stretching outlay beyond the limits of resource availability on the ground that securing a certain growth rate is an absolute minimum necessity for the purpose of achieving the stated economic and social purposes of the Plan, is not very correct, to say the least.

Specific Targets

A welcome feature of the Sixth Plan is that it combines the pursuit of high growth rate of economy with direct attack on poverty, unemployment and social and economic inequalities. There are specific targets worked out in quantitative terms on mitigation of poverty, reducing incidence of unemployment and providing basic minimum needs like provision of drinking water to the villages which do not have such supply at present. Thus : 1) 75 million persons in the rural areas will be given special assistance under the integrated rural development programme and helped to rise above the poverty line ; 2) Over 6 million people in the urban areas similarly will be helped to rise above the poverty line ; 3) additional employment is to be created for over 34 million persons : 4) under the national rural employment programme, 300 to 400 million mandays will be created every year, benefiting 3 million families; 5) the entire remaining 1.9 lakh villages that do not have clean drinking water facilities will be provided with that facility; 6) ten million slum dwellers will be given special assistance to improve their environment; 7) over 46,000 villages will get electric supply: and 8) special attention will be given to raising the consumption levels of the scheduled caste and tribe people. As the plan document puts it "The removal of poverty is the foremost objective of the sixth plan even though it is recognised that, given the magnitude of the task, it cannot be accomplished in a short period of five years. "This recogntion has led the planners to formulate the five year plan proposals in the long term perspective of 15 years from 1980-81 to 1994-95. This development perspective visualises accelerated progress

> *A welcome feature of the Sixth Plan is that it combines the pursuit of high growth rate of economy with direct attack on poverty . . . . .*

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towards the removal of poverty, generation of gainful employment and technological and economic self reliance. The growth rate of 5.2 per cent of GDP selected for the plan period has been arrived at by keeping this perspective in view. In the next ten years, after the end of the present plan period, the growth rate is expected to pick up to 5.5 per cent. As a result, the percentage of population below the poverty line is expected to fall from the present 48.44 per cent to 30 per cent in 1984-85 and 10 per cent in 1994-95. Volume of employment in terms of million standard person years (a standard person year is defined as 273 days work for eight hours a day for a person in a year) will go up from the present 151 million to 184 million in 1984-85 and to 248 million in 1994-95. Per capita GDP will go up from Rs. 1484 in 1980-81 to Rs 1744 in 1984-85 and Rs. 2534 in 1994-95 while per capita monthly expenditure will rise from Rs. 95.62 at present to Rs. 109.67 in 1984-85 and Rs. 151.98 in 1994-95. Monthly per capita consumption of foodgrains will go up from 12.95 kgs in 1980-81 to 14.32 kgs in 1984-85 and 15.50 kgs in 1994-95, while that of sugar from 0.68 kgs to 0.79 kgs and 1.15 kgs respectively. Thus emphasis in the plan is evenly distributed between attaining high growth rate of the economy and initiation of steps for securing well being of weaker sections of the population and rendering social justice.

The outlay of Rs. 97500 crores in the public sector is planned to be financed as follows :

Items	Amount (Rs. crores at 1979-80 prices)
(i) Balance from current revenues at 1979-80 rates of taxes . . .	14,478
(ii) Contribution of Public Enterprises	9,395
(iii) Market Borrowings of Govt., Public Enterprises and Local Bodies	19,500
(iv) Small Savings .	6,463
(v) State provident funds . . .	3,702
(vi) Term loans from Financial Institutions (gross) . . .	2,722
(vii) Misc. Capital Receipts (Net) .	4,009
(viii) External Assistance and Borrowing from the rest of the world (Net)	9,929
(ix) Drawing down of Foreign Exchange Reserves	1,000
(x) Additional Resource Mobilisation	21,302
(xi) Uncovered gap/Deficit financing	5,000
Aggregate Resources . .	97,500

Unfounded Apprehensions

Apprehensions that are not all unfounded have been expressed in some quarters that receipts from items (i) and (ii) in the above table may not come up to expectations and the need for deficit financing may be greater than the stipulated amount of Rs. 5000 crores. This constitutes a serious threat to the success of the Plan for with the heavy inflationary pressures already operating in the economy, any large measure of additional deficit financing in the Plan period is bound to accelerate price rise still further which, in turn, apart from the distress it causes to the people will upset all plan estimates of resources, outlays and physical targets.

Apart from a sound financial base, the success of the plan would depend upon the evolution of a sound policy framework that ensures accelerated growth of the economy with maintenance of relative price stability. Such a policy framework has to embrace mobilisation of resources in an adequate measure so as to avoid resort to deficit financing beyond the limits of prudence, supply and demand management to prevent any inordinate rise of prices, improving the performance and productive efficiency of public enterprises so that they yield adequate returns on the capital invested in them and generate resources for further expansion of public sector, and adoption of specific steps required for the attainment of the objectives of the plan in different sectors of the economy : accelerated growth in agriculture, pursuit of a well coordinated energy policy aiming at reduced dependence on imported oil, promotion of new avenues of employment, reduction of regional disparities, protection of environment and economical balance and population control through family planning and welfare measures.

What is required to prevent inflation from arising is a policy framework that ensures raising of the required amount of resources through taxation and market borrowing apart from any amount that may become available from the profits of public enterprises.

The most pressing problem at the moment is mobilisation of resources not only to finance public sector outlay but also the proposed investment in the private sector. The current rate of savings in the economy is fairly high for a Third World country. The problem is not so much of raising the level of savings as that of channelisation of the available funds into planned development. There is considerable leakage of funds to the parallel economy which fact is primarily responsible for the inflationary spiral we are going through. This happens in two ways. First the leakage of funds to the parallel economy enables market supplies of goods to be diverted into the black market with the result that shortages are created in the open market and prices rise. Secondly, shortfall of funds for the public sector outlay leads to a corresponding amount of deficit financing thereby adding to money supply with consequent rise in prices. In so far as the government is able to raise to needed resources through taxation and market borrowing, planning need not give rise to any inflation. It is only when savings are to be "forced" from the people through deficit financing that inflationary pressures take birth and grow. What is required to prevent inflation from arising is a policy framework that ensures raising of the required amount of resources through taxation and market borrowing apart from any amount that may become available from the profits of public enterprises. Taxation level in India has crossed 19 per cent of GDP and the scope for further increase in the rate taxation is hardly there. Of course revenue collection can improve greatly if tax evasion were eliminated and the amount due legally were all collected. That requires wide ranging tax reforms and significant improvement in tax administration. Market borrowings and small scale savings amounts collected by the government have been going up in recent years but collections from these could be much greater if there were price stability and no fear of erosion of value of accumulated savings kept in the form of deposits and government securities.

Additional Resource Mobilization

Additional resources for development in the present situation will have to be raised from larger mobilization effort on the part of the States than what has been witnessed for the last 15 or 20 years. The Sixth Plan calls for additional resources mobilization of Rs. 21302 crores during the plan period by the Central and State Governments and their enterprises. Of this amount, the share of the State governments has been put at Rs. 9012 crores. The centre has firmly told the Chief Ministers at the meeting of National Development Council held in February 1981 that plans of the States would be out if they fail to make a contribution commensurate with the increased size of the plan. The scope for raising additional revenues at the states' level is large. Thus land revenue and agricultural incomes in recent years have risen sharply. Reform of agricultural taxation so that large farmers earning high incomes pay their due share in taxes is long overdue. States could also raise fairly large amount of funds by upward revision of electricity and water charges and raising of bus fares. The Planning Commission suggests these measures for implementation by the State governments. At the same time, it suggests raising of returns from Central Government public sector enterprises, to 10 per cent on capital invested by the end of the plan period. It is on the success of the efforts to raise the additional finance through non-inflationary channels and sources that the outcome of the Sixth Plan will depend. Mobilization of adequate resources without resort to deficit financing is, therefore, to be regarded as the King-pin for the future success of planning in India.

The sixth Plan represents an act of faith on the part of the present government. "The day will dawn. Hold thy faith firm". It is with these words from poet Tagore that the Prime Minister, Mrs. Indira Gandhi, starts the preface to Sixth Plan document, contributed by her. Such unshakeable faith in planning as an instrument for development and alleviation of mass poverty, is indeed laudable. But faith is not enough, there must be appropriate action and policy package to achieve the desired goals, as well as the necessary political will to back that action and those policy measures. Our past failures in planning have arisen from lack in the latter field. We have now a strong government at the centre as well as in most of the states. Under the circumstances one hopes experience in this respect will be much better this time. □

Mundadugu—A Step Forward

K. B. G. Tilak*

THE COLLECTOR of Krishna district of Andhra Pradesh has started a scheme—Mundadugu scheme—to provide employment to educated rural youth.

Under its first project, 40 Unemployed Educated Youth were provided with Rs. 23,000 each as a loan from the Andhra Bank. The surity was given by the Government. Scheduled Caste and Backward Classes Financial Corporation provided a part of the loan and also took five acres land on lease at Serinarasannapalem and constructed sheds by engaging the 40 members who were paid daily wages for the construction of the Sheds.

500 chicks were given to each of the 40 Youth who were also provided electricity, water and residential quarters. Each beneficiary of the Scheme was given stipend of Rs. 250 per month, for six months. They had to clear off the loan from the bank within five years. Marketing of eggs was arranged by the Government through the Sales depots of the Andhra Pradesh Meat and Poultry Marketing Corporation. Eevery beneficiary made a net profit of Rs. 1200 per month.

Project Officer, S.F.D.A., had been taking brisk action in implementing 44 more projects under this Mundadugu Scheme by providing more funds to 3,000 unemployed educated youth in the district. These projects will include poultry, Dairy, Polyester Cloth Weaving, Kalamkari printing, Hand-weaving, Sericulture, Goat and Sheep rearing, Piggery, Tanning, Pisciculture, Duck rearing, Horticulture schemes etc.

India's Imports

THE Indian Chamber of Commerce has emphasised the need for further flexibility in import policy. In a survey of India's Imports released recently in Calcutta, it called for long-term contracts for stabilising import supplies and costs, and for building up stock piling of raw materials for meeting urgent needs. The import policy, it said, should be implemented in close cooperation with industry and trade so that the country can make the best use of the available foreign exchange resources. The import of technology should be more liberally allowed from the point of view of industrial development and export promotion.

The survey highlighted the huge expenditure incurred in importing products for which India has enough capacity to manufacture. At least over Rs. 1500 crore worth of goods, it said, were being imported annually mainly because of the constraints on production. By better utilisation of existing capacity, it should be possible to save sizeable amounts of foreign exchange. An increase in capacity utilisation by 15 to 20 per cent only in three industries, namely, fertilisers, cement and caustic soda, would help save about Rs. 650 crore in foreign exchange.

The survey emphasised the importance of giving a strong stimulus to import substitution. It identified the areas which offer scope for import substitution. It revealed that in 1973-74 India's total imports increased to Rs. 2995 crore from Rs. 1867 crore in 1972-73, a growth rate of Rs. 58.3 per cent. In 1975-76 there was a further increase to Rs. 5265 crore which fell to Rs. 5074 crores in 1976-77. In the subsequent three years, imports rose rapidly to Rs. 6066 crore, Rs. 6814 crore and Rs. 8231 crore, respectively. □

Gist of Sixth Plan—Part III

Agriculture and Allied Sectors

THE EXPERIENCE of the recent past shows that a lack of coordination among critical sectors acts as a general drag on economic growth. Production capacities created after a massive investment effort remain under-utilised due to shortfall in performance of a few sectors. It is, therefore essential that the projected production profile should be internally consistent not only at the sectoral level, but also at the level of specific commodties|services.*

The aims of the agricultural programmes during the Sixth Plan period would be :

(a) to consolidate the gains already achieved ;

(b) to accelerate the pace of implementation of land reforms and institution buildings for beneficiaries ;

(c) to extend the benefits of new technology to more farmers, cropping systems and regions; and to promote greater farm management efficiency through concurrent attention to cash and non-cash inputs ;

(d) to make agricultural growth not only an instrument of maintaining an effective national food security system but also a catalyst of income and employment generation in rural areas :

(e) to promote scientific land water-use patterns based on consideration of ecology, economics, energy conservation and employment generation;

(f) to safeguard the interests of both producers and consumers by attending to the needs of production, conservation, marketing and distribution in an integrated manner.

The targets with regard to agricultural inputs and for the extension of irrigation are indicated in Table I.

Table : I Target of Inputs

Sl No	Item	Unit	Assumed base level 1979-80 (Actual/Anticipated)	Plan trarget 1984-85
1	2	3	4	5
I	*Seeds*			
	1 Certified	Lakh quintals	13.71	54.00
	2 Foundation	-do-	0.92	3.00
	3 Breeder	-do-	0.06	0.12
II.	*Fertiliser consumption*			
	1. Nitrogenous (N)	Lakh tonnes	35.00	60.00
	2. Phosphatic (P)	-do-	11.50	23.40
	3. Protassic (K)	-do-	6.10	13.10
	TOTAL N+P+K		52.60	96.50
III	Pesticides (Tech. grade material)	Thousand tonnes	60.00	80.00
IV.	HYV Programme	Million Hectares		
	1 Paddy	-do-	13.60	25.00
	2 Wheat	-do-	13.50	19.00
	3. Maize	-do-	2.00	2.00
	4 Jowar	-do-	3.00	5.00
	5. Bajra	-do-	3.10	5.00
	TOTAL HYV		35.20	56.00
V.	Gross Cropped Area	Million Hectares	171.00	181.00
VI	*Irrigation*			
	1. Minor Irrigation			
	(a) Surface water	-do-	8.00	9.00
	(b) Ground water	-do-	22.00	29.00
	TOTAL		30.00	38.00
	2 Major & Medium	Million Hectares	22.60	28.20
	TOTAL : Irrigation (1+2)		32.60	66.20
VII.	*Command Area Development*			
	1. Construction of field channels	Million hectares	3.10	7.10
	2. Land levelling and shaping	-do-	1.00	2.00

The level of credit support during the plan period projected for different credit agencies is indicated in Table II.

Table II : Credit Support during the Plan

(in R . crores)

Agency	Anticipated advances in 1979-80	Level to be reached in 1984-85
1	2	3
Cooperatives		
Short term	1300	2500
Medium term	125	240
Long term	275	555
Commercial Banks (Regional including Rural Banks)		
Short term	450	1500
Term loans	400	620
TOTAL .	2550	5415

*Table containing commodity output projections has been published in Yojana issue dated March 1, 1981.

Table III below indicates the targets of crop production for the Sixth Five year plan along with the base levels:

Table III : Targets of crop production.

Sl. No. Crop	Assumed base* level 1979-80 (Trend Estimates)	Plan target 1984-85	Compound growth rate of col. 4 over col. 3 (%ge per annum)
	(Million tonnes)		
(1) Food grains :			
1. Rice . . .	51.24	63.00	4.2
2. Jowar . . .	10.88	12.00	
3. Bajra . . .	5.28	5.80	
4. Maize . . .	6.23	6.80	
5. Ragi . . .	2.85	2.70	
6. Small millets . .	1.83	1.90	
7. Wheat . . .	25.64	44.00	4.3
8. Barley . . .	2.30	2.90	
TOTAL : cereals . .	116.25	139.10	
pulses . .	11.61	14.50	
TOTAL : foodgrains .	127.86 or 128.00	153.60 or 154.00	3.9
(2) Oilseeds (million tonnes)			
1. Groundnut . .	6.12	7.30	
2. Castor Seed . .	0.24	0.30	
3. Rapeseed & mustard	1.91	2.40	
4. Sesamum . .	0.49	0.55	
5. Linseed . . .	0.56	0.55	
TOTAL : 5 Major oil seeds .	9.32	11.10	
6. Niger seed . .	0.10	0.20	
7. Safflower . .	0.23	0.35	
8. Soyabean . .	0.40	1.00	
9. Sunflower . .	0.15	0.35	
All oilseeds . . .	10.20	130.00	5.00
(3) Sugarcane (Cane) (million tonnes) . . .	175.80	215.00	4.1
(4) Cotton (million bales of 170 kg each) . .	7.34	9.20	4.6
(5) Jute (million bales of 180 kg. each) . .	5.66	6.96	
(6) Mesta . . .	1.88	2.12	
TOTAL : Jute Mesta . .	7.54	9.08	
(7) Tobacco (million kg) .	285	313	3.8
(8) Cashewnut (000 tonnes)	180	300	
(9) Coconut (million nuts)	6000	6750	
(10) Arecanut (000 tonnes) .	166	175	
(11) Tea (millon kg.) .	564@	705	
(12) Coffee (000 tonnes) .	118@	159	
(13) Rubber (000' tonnes)	144@	200	
(14) Cardamom (tonnes) .	4500@	5500	

*The base level figures for 1979-80 have been worked out on the bases of trend—line compound growth rate of production for the period 1967-68 to 1978-79.

@ Releates to average of 1977-78.

Irrigation

The strategies of development in the irrigation sector during the Sixth Plan will be broadly as follows :

(a) Expeditious completion of as many ongoing major schemes as technically and financially feasible, completion of all ongoing medium schemes excepting some of them taken up during the last two or three years of the Plan which may spill over into Seventh Plan.

(b) To initiate action on a few selected projects so as to keep up the tempo of development in Seventh Plan and also meet the needs of drought prone, tribal and backward areans and remove regional imbalances.

(c) Improved implementation of the programme by aiding and strengthening, where required, monitoring organisations of the projects at the State level apart from continuing work of monitoring at the Central level.

(d) Proper advance planning for scarce materials of construction in coordination with other Ministries concerned in order to procure scarce construction materials like cement, steel, coal, diesel etc., required for planned implementation of major and medium irrigation projects.

(e) Taking up work of modernisation of irrigation systems in a phased manner.

(f) Optiminisation of benefits through better operation of existing systems and conjunctive use of surface and ground waters and adoption of Warabandi.

(g) Efficient water management and introduction of Warabandi on rotational distribution system on the existing and new projects and formulation and monitoring of irrigation programmes for different seasons in a water year.

(h) Strengthening of Command Area Development (CAD) organisations and authorities and integrating functioning of canal management authoriites, CAD authorities and irrigators.

(i) Ensuring adequate maintenance of the canals and distribution systems by making adequate financial allocations for maintenance of canal systems.

(j) Setting up a system of evaluating regularly the project performance by appraising the actual benefits vis-a-vis the proposed.

(k) Carrying out detailed surveys and investigations for preparation of new projects to be taken up with priority being given to projects benefiting tribal areas, drought prone areas and areas having large percentage of scheduled castes with a view to completing investigation and preparation of project report of all projects in a phased manner by the end of 1989-90.

(l) Initiating investigation for a National Plan for inter-basin transfer of water from the water surplus area to the water short areas.

(m) Restructuring the management procedures in such a way that the farmers and public in command, catchment and watershed areas fully participate in the scientific management of the water and soil resources of the area and thereby enhance terrestrial and aquatic productivity per unit of water, land and time.

Table IV below shows the potential and utilisation from irrigation schemes in 1979-80 and the additional benefits expected during the Sixth Plan.

Table IV : Irrigation Potential and utilisation

	Unit	Irrigation benefits at the and of 1979-80		Additional benefits during Sixth Plan	
		Potential	Utilisation	Potential	Utilisation
Major & Medium	Lakh hectares	266.12	226.45	57.41	56.00
Minor		300.00	300.00	80.00	80.00
TOTAL		566.12	526.45	137.41	136.00

Rural Development

The strategy and methodology for accelarated rural development will be as follows.

(a) Increasing production and productivity in agriculture and allied sectors;

(b) Resources and income development of vulnerable section of the rural population through development of the primary, secondary and tertiary sectors;

(c) Skill promotion and skill upgrading programmes to promote self and wage employment amongst the rural poor;

(d) Facilitating adequate availability of credit to support the programmes taken up for the rural poor;

(e) Promoting marketing support to ensure the viability of production programmes and to insulate the rural poor from exploitation in the marketing of their products;

(f) provision of additional employment opportunities to the rural poor for gainful employment during the lean agricultural season through a national rural employment programme (NREP);

(g) Provision of essential minimum needs; and

(h) Involvement of universities. research and technical institutions in preparing a set of projects both for self-employment and NREP and in preparing strategies for the scientific utilisation of local resources.

The operational strategy of Integrated Rural Development Programme will have the following main elements :—

(1) A five year development profile will be drawn up for each district dis-aggregated into blocks, based on practical (achieveable) possibilities of development in agriculture and allied sectors. The plan so formulated will become the framework of action for the relevant schemes of development in these sectors.

(2) Farm guidance is to be provided on a systematic basis to the small and marginal farmer families. A specific operational programme will be drawn up by the extension agency for this purpose.

(3) A special programme of assistance to the poorest of the rural households will be drawn up to raise the specific households, so identified, above the poverty line.

(4) A blueprint for exploiting the availabale potential in the secondary and tertiary sectors, which also spells out linkages for training and marketing will be prepared for each block and families from among the target group identified for assistance based on such a blueprint.

(5) A suitable mechanism should also be developed to secure representation of the poor on the implementing agencies at the district, block and village levels.

(6) The credit plan for the District|Block while taking into account the total credit needs of the area, must also specifically indicate the credit programme for the target groups. It must also be ensured that their needs are met on a priority basis.

(7) IRDP will be implemented through a single agency in each district. Each district agency will have a multi-disciplinary planning team which may be funded out of the programme provision.

(8) Block organisation which has necessarily to be the field level agency for implementation has been greatly eroded over the years, and needs to be strengthened adequately in the terms of staff, both specialised and village level.

(9) The household-centred poverty alleviation strategy will come to consist of steps not only for the economic emancipation of the family, but also the education of the children, health and welfare of the vulnerable members, adoption of small family norm etc. Lists of such households should be provided to the departments which implement welfare programmes.

It is proposed to provide specific assistance under this programme to 3,000 families on an average in each block during the Sixth Plan. These families should be from the bottom of the rural population below the poverty line. It is essential that specific income generating projects are developed for each identified beneficiary family. Though the nature and scope of development projects for these families will vary from block to block depending upon opporunities, it is assumed that of the 3,000 families approximately 2,000 could on an average be covered by schemes broadly falling in the area of agriculture and allied activities, 500 in village and cottage industries and another 500 in the services sector. It is important that the identification of economic activity (s) for a household is done in full consultation with the beneficiary household concerned so that the project is appropriate to its inclination and management capability. The project must also be able to give enough net income to take it across the poverty line.

The scale of funding under the Programme will be Rs. 5 lakhs per block in the first year of the Plan, Rs. 6 lakhs in the second year and Rs. 8 lakhs each in the last three years. This gradual stepping up will take care of the time that will initially be taken in developing the district-block plans, identifying all the eligible beneficiaries, building up the organization and putting the programmes on a firm footing. In consonance with the funding pattern the target of beneficiary coverage could be lower in the first two years and higher in the last three years, with about 3,000 families covered on an average in each block over full five year period.

National Rural Employment

Under the National Rural Employment Programme, development projects and target group-oriented employment generation projects will be closely intertwined. NREP will be implemented as a Centrally sponsored scheme on 50 : 50 sharing basis between the Centre and the States. The Centre will provide its share in the form of foodgrains to the extent surplus foodgrains are available, and the rest in cash. Inter-State allocation of foodgrains will be made on a rational criteria related to the population size of the target group i.e. a State's population of marginal farmers and agricultural labourers and its rural population below the poverty line. The States will be encouraged to procure sorghum, millets and other locally grown foodgrains and utilise them under the scheme.

Scheduled Castes

The major objective of the Sixth Plan (1980-85) is to wage an all-out war on poverty and mobilise all our latent energies for the creation of a more dynamic and more equitable society. This will be achieved only if the scheduled castes|scheduled tribes who constitute the bulk of the poorer sections of the population receive their due share from the Plan programmes. In view of this, Special Component Plans will be formulated as part of various programmes to enable scheduled caste families to cross over the poverty line within a short period.

Hill Area

The hill areas which are self-contained politico-administrative units are being treated as Special Category States whose outlays are met, substantially out of Central assistance. These are the States and Union Territories of the North-Eastern Region, Jammu and Kashmir and Himachal Pradesh. In addition hill areas forming part of larger composite States occur in Assam Uttar Pradesh and West Bengal in the Himalayan and Sub-Himalayan region. Although the primary responsibility for development of these hill areas is that of the concerned State Governments, the need for Central assistance has been recognised even as far back as the Second Five Year Plan. Arrangements for providing Central assistance to the Hill Area Development Programme have been further* systematised since the commencement of the Fifth Five Year Plan.

Tribal Uplift Through Bank Finance

BANK OF INDIA implemented for the benefit of tribals a sericulture scheme in Singhbhum district, Bihar. Under the scheme formulated by the Sericulture Department (Government of Bihar), the Bank extended loans at a concessional interest rate of 4 per cent under D. R. I. Scheme to tribals for raising tassar cocoons to supplement their income from farming. Loans given to the tribals under the scheme were meant to cover the cost of seed cocoons and meet a part of the consumption expenditure of the tribal families during the rearing season.

In a study conducted by the bank recently, it was revealed that the beneficiaries earned an average net income of Rs. 560 from the sale of tassar cocoons in 1979-80. The scale of production and level of income earned by the beneficiaries from tassar cocoons increased by 85 per cent and 78 per cent respectively. In the face of total loss of farm income due to severe drought in the district in 1979-80, income earned from sale of tassar cocoons helped about 17,000 tribal families to a significant extent to stave off semi-starvation and maintain their consumption level. Besides augmenting tassar production and income thereof, mass financing under the scheme by the bank in the district had almost broken the monopoly of private moneylenders who were the principal source of finance to the tribals in the past.

The study identified the problems faced by tribals in augmenting tassar production. One of them was the shortage of better quality seed cocoons. To ensure the adequate availability of disease-free layings, the study recommended the setting up of a Seed Bank either as part of the Sericulture Department or as a separate agency. Lack of efficient marketing arrangement was observed to be another constraint in realising higher income from tassar cocoons. In the absence of a procurement agency, the poor rearers were forced to sell the bulk of the produce to private traders who exploited them. It was therefore suggested that cooperative marketing system should be organised to ensure better returns to cocoons rearers. In addition to providing finance for cocoon rearing, the study suggested to the bank to encourage the tribals to undertake productive activities like rope making, basket weaving and activities pertaining to forest based products so as to provide them more employment and higher income to improve the economic conditions of the tribal families.

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Gist of Sixth Plan : Part IV

Industry and other Sectors

IN ADDITION to the conventional strategies of aiming at optimum utilisation of existing capacities and improvement of productivity, certain other elements of policy would be necessary in the medium term perspective. These would encompass the following :—

(a) Substantial enhancement of manufacturing capacities in public|private sector covering a wide range of industries for providing not only consumer goods and consumer durables but also for supporting agricultural and industrial growth through supply of intermediate and capital goods.

(b) The capital goods industry in general and the electronics industry in particular will need special attention as these support the growth of a wide range of economic activity.

(c) In the context of the substantial foreign exchange resources required to support the Plan, export of engineering goods and industrial products, as also project exports will need to be stepped up.

(d) Industrial progress will necessarily depend upon continued technological excellence; this would call for a judicious blend of permitting import of contemporary technology and promoting the development of indigenous know-how through domestic research and development.

(e) Although industrial development would increase the demand for energy, measures will need to be taken in the context of the emerging situation to improve energy efficiency, not only of manufacturing industry, but also of their end-products. Further efforts will need to be made to adjust the energy consumption pattern in the industrial sector to domestic energy endowments.

(f) New strategies for development of backward regions will need to be desired. The thrust would be to implement a new model of development which would prevent concentration of industry in existing metropolitan areas.

The overall outlay envisaged in the plan is Rs. 20,407 crores including coal and petroleum. A major part of the outlay amounting to Rs. 19,018 crores is in Central sector and the balance of Rs. 1,389 crores in the States sector. Some two-thirds of the outlay in the Central sector is on continuing schemes, the balance one-third representing new starts during the Sixth Plan period. These new starts are intended primarily by way of advance action in order to create the necessary capacity to meet the anticipated demand in the early years of the Seventh Plan period.

The provision in the Central Plan for major sectors is given in Table I.

Table I : Break-up of Central Plan Sectors for Major Sectors

	Rs. crores
1. Steel	3613
2. Petroluem	4300
3. Coal	2870
4. Fertilizers	2367
5. Heavy Engineering . . .	704
6. Iron Ore	223
7. Non-ferrous metals . . .	1262
8. Petrochemicals	962
9. Paper and newsprint . . .	340
10. Cement	421
11. Drugs & Pharmaceuticals . .	145
12. Textiles	102
13. Electronics	156

A significant portion of the outlay has been allocated to petroleum, coal, metals and fertilizers in line with the priorities of the Plan. A rough analysis indicates that approximately 26 per cent of the overall outlay in the public sector would go to support the programmes in the rural and agricultural sector. In the case of metals, the new steel plant at Visakhapatnam, the alumina complex in Orissa and the continuing programmes of expansion of steel plants at Bhilai and Bokaro account for the large investment proposed. In the case of fertilizers, several new starts for nitrogenous fertilizers based on natural gas and also for phosphatic fertilizers are envisaged. The Plan provision for the public sector undertakings also includes support for R & D activities many of which will, besides supporting the needs of the concerned public sector units, also cater to the overall technological needs of the industries concerned. Provision has also been made for replacement, rehabilitation and technological improvements in existing undertakings.

The capacity and production estimates for selected industries for 1984-85 are given in Table II on next page.

Table II : Capacity and Production Estimates for Selected Industries for 1984-85

Sl. No.	Industry	Unit	1979-80 Actual/Anicipated Capacity	1979-80 Actual/Anicipated Production	1984-85 Proposed Capacity	1984-85 Targets Production
1	2	3	4	5	6	7
1.	Coal	Mill. tonnes	..	104	..	165
2.	Crude Oil	,, ,,	.	11.77	..	21.6
3.	Iron Ore	,, ,,	.	39	..	60
4.	Saleable Steel	,, ,,	11.21	7.38	14.30	11.51
5.	Aluminium	"000 tonnes	330	192	350	300
6.	Copper	,, ,,	47.5	22 5	60	50
7.	Cement	Mill. tonnes	24.30	17.58	43 0	34.5
8.	Petroleum Products	,, ,,	..	25.83	..	35.34
9.	Sulphuric Acid	'000 tonnes	3830	2131	5000	3600
10.	Caustic Soda	,,	768.6	550	1050	850
11.	Soda Ash	,,	633	556	1000	850
12.	Nit. Fertilizers	,,	3891	2226	5938	4200
13.	Phos. Fertilizers	,,	1230	757	1825	1400
14.	L. D. Polyethylene	,,	112	71 3	112	100
15.	H. D. Polyethylene	,,	30	25.4	30	27
16.	Polyvinyl Chloride	,,	77.9	49 90	173	128
17.	Styrone Butadiene Rubbers	,,	30	21.6	30	27
18.	Polybutadiene Rubbers	,,	20	8.7	20	18
19.	Viscose Filament Yarn	,,	41.1	41.8	43	43
20.	Visscose Staple Fibre	,,	97.4	84.5	150	120
21.	Nylon Filament Yarn	,,	21	17.7	31.4	28
22.	Polyster Staple Fibre	,,	30.4	23.6	58.6	55
23.	Bulk Drugs	Rs. Crores	..	226	..	665
24.	Formulations	,,	1150	..	..	2450
25.	Sugar	Mill. tonnes	6.0	3.9	8	7.64
26.	Vanaspati	'000 tonnes	1291	626	1351	900
27.	All Yarn (Cotton belnded and mixed)	Mill Spindles	20.78	1216	22.80	1425
28.	Cloth (mill Prod,Sector)	Mill. Kg. capacity lakh loom	2.07	4085@	2.174	13030—31300
29.	Cloth (Decentralised Sector)	Mill. Mtrs.		6350		
30.	Jute Manufactures	'000 tonnes	1325	1336	1500	1500
31.	Leather Footwear (Organised Sector)	Mill. pairs	20.8	13	30	25
32.	Paper & Paper Board	'000 tonnes	1538	1050	2050	1500
33.	Newsprint	,,	75	47.4	230	180
34.	Soap (Organised Sector)	,,	..	300	..	370
35.	Synthetic Detergents, (Organised Sector)	,,	230	170	375	300
36.	Machine Tools	Rs. crores	190	163.3	300	250
37.	Textiles Machinery	,,	300	210	370	295
38.	Steel turbines	Mill. KW.	2.5	2.28	4.0	3.5
39.	Hydro Turbines	,,	1.03	0.95	1.5	1.2
40.	Railway Wagons	'000 Nos.	22.5	12	30	25
41.	Ship Building	'000 GRT	90	73	186	140
42.	Commercial Vehicles	'000 Nos.	84	57.4	140	105
43.	Consumer Electronics	Rs. Crores	253	194.4	602	522.5
44.	Industrial Electronics	,,	166	115	465	350
45.	Communication Equipment	,,	287.5	191.5	553	473.4
46.	Computer system	,,	23.5	16.5	120	90
47.	Components (Electric)	,,	180	140	450	395

@Excluding art silk fabrics

Village and Small Scale industries

Promotion of village and small scale industries will continue to be an important element in the national development strategy particularly because of its very favourable capital-output ratio and high employment intensity. During the Sixth Five Year Plan, the programmes for the village and small industries sector would be so designed as to subserve the following objectives :—

- (i) Improvement in the levels of production and earnings, particularly of the artisans, through measures like upgradation of skills and technologies and producer-oriented marketing etc.
- (ii) Creation of additional employment opportunities on a dispersed and decentralised basis;
- (iii) Significant contribution to growth in the manufacturing sector through, inter-alia, fuller utilisation of existing installed capacities;
- (iv) Establishment of a wider entrepreneurial base through appropriate training and package of incentives;
- (v) creation of a viable structure of village and small industries sector so as to progressively reduce the role of subsidies; and
- (vi) Expanded efforts in export promotion.

Targets of output, employment and exports for village and small industries are given in Table III.

Table III : Targets of output, employment and exports for different Village and Small Industries

Industries	Unit	Output (Value in Rs. crores)		Employment Coverage@ (in lakh persons)		Exports (Rs. crores)	
		1979-80	1984-85	1979-80	1984-85	1979-80	1984-85
1	2	3	4	5	6	7	8
A. *Traditional Industries*							
1. Khadi	Million Sq mtrs.	81	165	11.24	15.40		
	—value	98	200				
2. Village Industries	—value	314	1000	18 21	35 10		
3. Handlooms	—Million metres	2900	4100	61.50	87.00		
	--Value	1740	2460			261	370
4. Sericulture	—Lakh Kgs. of raw Silk	48	90	16.00	21.50		
	—value	131	245			49	100
5. Handicrafts	—value	2050	3200	20.30	28.00	835	1315
6. Coir	--lakh tonnes of fibre	1.85	2.63	5.59	8.00		
	— value	86	122			30	50
SUB-TOTAL (A) :	—value	4419	7227	132.84	195.00	1175	1835
B. *Modern Small Industries*							
7. Small Scale Industries	—value	21635	32873	67.00	89.00	105	1850
8. Powerlooms	—Million metres	3450	4300	11.00	14 00		
	—value	3250	4100				
SUB-TOTAL (B) :	—value	24885	36973	78.00	103.00	1050	1850
C. *Others*	—value	206	5035	25.00	28.00		
TOTAL : VSI (A+B+C)	—value	33510	49235	235.84	326.00	2225	3685

Note : Data for items 1 and 2 in the table relate to units under the purview of the KVIC, and for item 7 relates to units under SIDC, with reference to revised definition of SSI units of July 1980. Data for others (under C) relate to units not covered under the specified industry groups. Employment coverage includes both full-time and part-time.

The requirements and the need for action in the transport sector are varied and cover a large number of segments. The important policy objectives in the Sixth Plan period would be :

- (a) To remove the transport bottlenecks which have acted as serious constraints in the movement of industrial and agricultural goods and in the promotion of international trade;
- (b) To create adequate additional capacity in the transport sector to meet the requirements of anticipated traffic ;
- (c) To conserve energy, particularly diesel, to the maximum extent possible;
- (d) To evolve a high degree of coordination within the transport sector and with user organisations, to make optimum use of available capacity;
- (e) To give priority to the completion of on-going works ;

Table IV : Minimum Needs Programme : Target and Outlays

Head	Objective	Target by 1985	Outlay (Rs. crores)	Central Plan
	2	3		5
Elementary	100% enrolement in the age group 6-14 by 1990. It would be supplemented with non-formal education.	95% enrolment in the age group 6-11 and 50% in the age group 11-14. It would be supplemented with non-formal education	852	54
	100% coverage of adults in the age group 15-35 by 1990 through non-formal education.	Target no fixed	68	60
Rural Health	1. One Community Health Volunteer for a population of 1000 or a village by 1990	To increase the number of Community Health Volunteers from 1.40 lakh as on 1st April, 1980 to 3.60 lakhs	408	169
	2. Establishment of one sub-centre for a population of 5000 in plains and 3000 in tribal and hilly areas by 2000 A.D.	To increase the number of sub-centres from 50,000 to 90,000 for 75% achievement of the objective		
	3. One PHC for 30,000 population in plains and 20,000 in tribal and hilly areas by 2000 A.D.	To establish 600 additional PHCs and 1000 SHCs over and above 5400 PHCs and 1000 SHCs existing now for achieving about 45% of the number required.		
	4. Establishment of one Community Health Centre for a population of one lakh or one C.D. Block by 2000 A.D.	To establish 174 community Health Centres, in addition to converting existing 430 upgraded PHCs into Community Health Centres.		
Rural Water Supply		Converage of all the remaining problem villages by 1985 excepting in some difficult areas like hilly and desert regions.	1407	600
Rural Roads	Linking up of all remaining villages with a population of 1500 and above and 50% of the total number of villages with population of 1000-1500 by 1990.	To cover about 50% of the total number of villages required to be covered to achieve the objective, i.e. additional about 20,000 villages.	1165	
Rural Electrification	At least 60% of the villages in each State and Union Territory to be electrified by 1990.	40% of the villages required to be covered to achieve the objective, additional 46,474 to be electrified.	301	
Housing Assistance to rural landless labourers	Provision of housing assistance to all landless labour households by 1990. Assistance to include house-site construction materials, drinking wat-water well for a cluster of houses and approach road.	To cover all the remaining households for allotment of house-stites and 25% of the eligible households i.e. about 3.6 million for provision of assistance for construction of houses.	354	
Environmental improvement of urban slums	100% coverage of urban slum population by 1980. Facilities to include water supply, sewerage, paving of streets, storm water drains, community latrines. Areas inhabited by scheduled castes particularly scavengers would be given priority.	40% of the remaining slum population i.e. additional 10 million slum population to be covered.	151	
Nutrition		SNP : 5 million children in 600 ICDS blocks and 5 lakh women to be covered by providing integrated services of feeding, health welfare etc.	212	
		DM:The existing level of Beneficiaries i.e. about 17.4 million children to be continued and the programme to be integrated with other essential services.		
		TOTAL	4924	883

(f) To maximize the utilisation of existing assets through higher productivity;

(g) To evolve a rational pricing structure in the public sector transport undertakings so as to ensure their running on profitable basis and contributing adequately to the national resources; and

(h) To give special attention to the transport needs of remote and isolated areas, such as the North Eastern Region.

Energy

A reduced dependence on imported oil has to be a key element of our development strategy in the years to come. The main features of such a strategy are summarised as follows :—

(i) Through the pursuit of appropriate pricing policies and other related measures, the rate of growth of consumption of oil products must be curbed, particularly of diesel and kerosene which have shown unacceptably high rates of growth in recent years. Utmost economy and maximum efficiency in the proper use of petrol diesel and petroleum products should be effected and public opinion should be made more aware of the nature of the oil crisis and what it means for the average citizen.

(ii) Efforts for the exploration and development of domestic resources of oil have to be greatly intensified.

(iii) Expansion in the production of coal and electricity and faster exploitation of India's considerable hydro-potential and further development of nuclear power have to be pursued with greater vigour.

Family Planning Programme must rise above all controversies and should be accepted as a national programme by all sections of the population.

(iv) In order to economise in the use of kerosene and diesel in rural areas, setting up of biogas plants and energy plantations under the intensive forestry development programme, using waste land and appropriate timber species which grow rapidly, have to be pushed ahead.

(v) There is considerable scope for conservation and economy in the use of several industrial processes. An energy audit should invariably become an annual feature of the activities of all major industrial enterprises in the public and private sectors.

(vi) Research on the development of renewable sources of energy particularly use of solar energy must receive greater attention than in the past. An Alternative Energy Commission has already been set up.

Minimum Needs Programme

The Minimum Needs Programme introduced in the Fifth Five year Plan will continue during the Sixth Plan. Its components are as follows :

1. Elementary Education
2. Rural Health
3. Rural Water Supply
4. Rural Roads
5. Rural Electrification
6. Housing Assistance to rural landless labourers
7. Environmental improvement of urban slums
8. Nutrition.

For optimising benefits, these programmes have to be taken as a package and related to specific areas and beneficiary groups. A sectoral approach in which programmes are formulated and implemented departmentally will not be adequate either for the overall development of the area or for bringing about the desired distribution of benefits. The need for integration is especially greater at the micro-level where the programmes are implemented.

The targets and outlays for the Sixth Plan for Minimum Needs Programme are given in Table IV on the previous page.

Family Planning

The Sixth Plan seeks to initiate a process which will lead to a reduction in the net reproduction rate to unity by 1995 for the country as a whole. Family Planning Programme must rise above all controversies and should be accepted as a national programme by all sections of the population. A national consensus on this subject has therefore to be developed. Family Planning cannot be the sole responsibility of any one Department but of Government as a whole. The areas of useful activity in each Ministry|Department in relation to family planning will have to be identified, spelt out in precise terms and responsibility for their activities squarely fixed on the Ministries|Departments concerned.

Science and Technology

The Plan lays special emphasis on the crucial role of science and technology as an instrument of social and economic change. It calls for linkages and mechanisms for effective application of science, particularly in the optimal use of natural resources and in areas such as energy, health, population control ecology and environment and integrated industrial and rural development. The Plan also suggests that young talent be attracted to science and technology and priority for this be given to a substantial improvement in the general science and technological facilities in universities and research institutions. An outlay of Rs. 848 crores is provided in the Plan for science and technology; in addition the science component in the outlay of other Ministries and Departments is Rs. 1069 crores, making a total of Rs. 1917 crores.

Environment

The Plan lays considerable emphasis on the preservation of ecological balance and improvement of environment. It proposes an integrated approach to find, and implement methods of redressing existing environmental problems and build up the capability for preventing or mitigating those that would arise in the future. The recommendations of the Committee on Environment will be considered and implemented in the course of the Plan.

(The last part which is to be published in the next issue consists of 'Policy Framework)

Traffic Problem in Metropolitan Cities

K. M. Balasubramanian*

THE RAPID GROWTH of urban traffic in recent years has been due to increasing concentration of population and economic activities in and around metropolitan cities. During the decades from 1941 to 1971, the total urban population in the country has increased from 44 million to about 110 million showing an increase of about 146 per cent. About 25 per cent of the entire urban population is concentrated in nine metropolitan cities, namely Calcutta, Bombay, Delhi, Madras, Hyderabad, Bangalore, Ahmedabad, Kanpur and Pune. Just as in the case of urban population, the increase in the number of vehicles has also been a problem in these metropolitan cities. The existing road network is not able to cope with the increased volume of traffic. This has resulted in a very low average speed of the vehicles running on these roads. The road congestion has also resulted in a large number of accidents.

The commuters' travel between home and work place presents the greatest transportation problem in metropolitan areas. The traffic and transportation study conducted by the Metropolitan Transport Team of the Planning Commission estimates that 45 to 50 per cent of the daily passenger trips in the metropolitan cities were for travel during the peak hours of which 60 to 70 per cent were for journey to work and return. The majority of trips in these cities were being performed by the existing public transportation system, such as buses, suburban trains and trams. According to the study made by the Metropolitan Transport Team, the percentage of trips by public Transport to total number of trips by all modes varies from 41 for Delhi to 80 for Calcutta, 68 for Madras and 78 for Bombay. The low percentage of trips by public transport in Delhi reffects the inadequate public transport system available for the city commuters. The Team has recommended 75 per cent trips by public transport for Delhi for the year 1981. Against this figure, the present rate seems to be only about 50 per cent. The modal split in case of Madras has been recommended as 80 per cent for the year 1991.

The ever-increasing traffic resulting in road congestion, accidents and high operational cost for the vehicles is faced not only by India but by many foreign countries also. An advanced country tries to solve the problem by construction of wide roads, of free-ways and express-ways. But each new high way constructed only encourages further traffic creating further conjestion. In many urban areas in foreign countries, the traffic problems were worsening more rapidly than the relief provided by construction of new high ways and express ways due to very high increase in the number of motor vehicles. The dwindling availability of land in the congested cities and heavy financial outlays involved in the construction of new road network have raised questions as to the wisdom in constructing such roads. Therefore, the present thinking is to develop mass transportation system to reduce the number of vehicles using the city roads.

The traffic problems of Calcutta, Bombay, Delhi and Madras would continue to grow as a result of increasing economic activities in these cities. In view of the emerging energy situation the role of personalised transport would be reduced considerably and public transport system would assume a greater role. The Metropolitan Tranport Team had come to the conclusion that the future commuter demand could only be met satisfactorily by an efficient mass rapid transit system.

Suggested Solutions

Having identified the problems, the solutions to these problems can be divided into four phases :

(i) Traffic management in relation to land use planning,
(ii) Improvements of existing roads;
(iii) Control of traffic on the existing roads in order to make most economic use of them; and
(iv) Development of public transport system.

The ever-increasing traffic resulting in road congestion, accidents and high operational cost for the vehicles is faced not only by India but by many foreign countries also.

As the construction of new roads involves a very heavy investment which the country can ill-afford at this time, the solution may perhaps lie in better traffic management. Traffic management involves control on the use of roads in such a manner as to obtain the greatest economic benefit. The aim should be to move more and more people and goods and less number of vehicles.

Larger number of people can be moved only by making available more and more capacity for movement without necessarily increasing the number of vehicles on road. This can be done by development of mass transportation.

By and large the transportation problem is mainly a peak hour one, as the major percentage of trips is for going to work in the morning and returning home after the working hours. Creation of residential zones away from work zones has further worsened the situation.

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Taking into account the problems mentioned above, it has been decided to improve the ring railway system in Delhi by converting it to electric traction. In Calcutta, the tube railway after its completion may give some relief to the city traffic.

However, the most important factor that can immediately benefit the metropolitan traffic is the efficient management of metropolitan bus transport services. The carrying capacity can be maximised by improving the maximum number of seats in a particular time span. This in turn would largely depend upon internal factors of the undertaking like fleet utilisation, route planning, bus scheduling, speed of the vehicles, etc. However, the speed of the vehicles which has an impact on the operational cost of the vehicles is largely governed by the external factors such as road congestion, road traffic management etc. By optimising the speed of buses it is possible to minimise the operational cost.

The question of giving a higher priority for buses in metropolitan areas brings in the issue of physical restriction of use of roads by private vehicles. In this connection, Singapore Area License Scheme is worth recalling. It was recognised that even the largest road construction programme had failed to solve the problem of congestion as demand for road space continued to grow fast. Since the supply has failed to balance the demand, attempts were made to curtail the demand. The use of private vehicles affects adversely the mobility of public transport. Increased public transport efficiency can result in reducing the amount of private car usage. Keeping all these in view, the Singapore Government, in consultation with the World Bank, decided to introduce an area licensing scheme in June 1975. Under this scheme a special supplementary licence must be purchased and displayed on any car that is driven into a restricted zone during peak hours Implementation of the scheme helped in minimising the ongestion on roads in Singapore. The number of cars entering the restricted zone in the peak hours fell by 73 per cent from March 1975 to October 1975. The speed of the public transport buses could increase by about 20 per cent resulting in the lowering of their cost of operation.

The above experiment which was by and large successful in Singapore can be tried in our own metropolitan cities.

Lack of Data

Lack of data about the demand and supply of traffic in most of the metropolitan cities has been a limiting factor for the formulation of a proper policy for solving the traffic problems in these cities. There was no detailed investigation after the study made by the Metropolitan Transport Team of Planning Commission in 1970. The latest study made on the subject is by the Working Group on Urban Transport set up by the National Transport Policy Committee in 1979. The study has brought out many new facets of the problem. One of the important findings of the study is that the rate of urbanisation in this country has been quite modest. Even by 2001 AD, the estimate of urban population is expected to reach a level of only 29.4 per cent which cannot be considered as alarming according to the Committee. The study found that the population increase in some of the metropolitan cities is also not very substantial. However, the absolute increase in population will be quite staggering. The study also points out that while in a number of major metropolitan cities, the area has increased over the years, the destinations in the Central business districts have remained unchanged with the result that the density of trips in these areas have grown very substantially. Therefore, the Working Group suggested that suitable measures are to be taken to ease these situations.

The Planning Commission have recognised the enormous problems being faced in the field of transport particularly in view of the emerging energy situation. The Commission have requested the State Governments to consider the feasibility of introducing electric trolly buses. However, the response from the State Governments has not been encouraging. The scope for running suburban electrified rail services also needs to be examined keeping in view the financial constraints and the present oil crisis.

A New Device to Save Fuel

A NOVEL electronic fuel saving device for automobiles has been invented by the Soviet Scientists at the Automobile and Road Construction Institute in Tashkent. With the application of this device the fuel injection system for internal combustion engines automomatically stops injecting fuel to the cylinders at each slowing down of the movement of an automobile and resumes injecting it when it is necessary. Cars fitted with this simple and inexpensive device passing through the streets of Tashkent cover a third of their mileage with engines off but retaining the speed. Not only is the fuel consumption of such vehicles 13 per cent less than normal they also emit 40 per cet less of toxic gases. □

(Soviet Features)

Symposium on Transportation

National Symposium on Transportation System Studies : Analysis and Policy will be held at the IIT Delhi, for three days from December 4, 1981. The technical session will cover the following : criteria for evaluation of level of service, integrated land use and urban transport planning, location storage and allocation planning, transit and para-transit planning, regional and rural transport planning, energy implications and related issues in transport, aspects of vehicle design, panel discussion on institutional coordination and management of transport systems and workshop on future policy thrust.

Last date for submitting papers is April 30, 1981. Enquiries may be addressed to Dr. A. L. Agarwal, Convener, Organising Committee, Assistant Professor, Department of Humanities and Social Sciences, Indian Institute of Technology, Hauz Khas, New Delhi—110016 (Telephone No. 653577).

Kenya's Economic Development

Navin Chandra Joshi*

KENYA lying between the tropics of Carpricorn and Cancer, is a land of vivid contrasts, of massive mountains, valleys, gushing rivers; of lakes and beaches of the mighty Indian ocean. Its capital, Nairobi, has acquired an international reputation as an airport connecting many countries, while its beaches, particularly the Mombasa port, have a great tourist attraction.

Until Kenya became independent on 12 December 1963 it was a colony and the protectorate of Great Britain. A constitution conferring internal self-government was brought into force on 1June, 1963 while full independence was achieved on 12 December 1963 Kenya became a republic exactly after one year on 12 December 1964.

The country is divided into the Nairobi Area and seven provinces over which there are local councils with administrative functions. Swahili is the official language of the country but English is in general used. The total area of the country is 582,600 sq. km and population around 15 million. Kenyas value keenly their own cultural heritage, the clarion call for which was given by the late President Mzee Jomo Kenyatta and has now been re-emphasised by President Daniel Arap Moi and other Kenyan leaders.

GDP

The gross domestic product of Kenya is estimated to be around kenyan Pounds 1,857 million at current factor cost while at constant (1972) prices it amounts to K£ 913.8 million. (Kenyan 92.74 Shillings are Rs 100 approximately.) The gross capital formation at current prices is more than K £ 1800 million. The country's balance of payments was unfavourable to the extent of K£ 252.5 million in 1978 on current account. The competitiveness and the changing conditions of world markets have made it difficult for Kenya to make a dent in the existing balance of payments situation. The hike in petroleum prices has hit her economy as has been the case with other developing countries as well.

Agriculture plays a dominant part in the economy of the country. The contribution of agriculture to the GDP is around 35 per cent of the total. As agriculture is possible from sea-level to altitudes of over 9,000 ft., tropical, sub-tropical and temperate crops can be grown and mixed farming adopted. Coffee, tea, maize, wheat, sisal and pyrethrum are grown in the highlands, while cotton, sugar, sisal, coconuts, cashew nuts, etc., at the lower altitudes.

Kenya has 16,800 sq. km of forest area. These forests are conferous, hardwood and bamboo varieties. Foreign exchange earnings from the forest based industrial products are quite sizeable. Of Kenya's total land area only 99,050 sq. km. that is 17.4 per cent is arable. There are about 20 persons per square kilometer on an average but the density is very high that is 103 persons per square kilometer in arable areas like Nairobi and Mombasa. It is estimated that the density of population would be 180 persons per sq. km. by 1984 and 220 persons by 1990. All this indicates the growing landlessness in the country and it has been found that about 14 per cent per household do not own any land within the areas they live. Due to lack of sufficient fertilisers and other inputs, the fertility of the soil has been going down from year to year.

Contribution of agriculture to GDP is about 35 *per cent of the total. Kenya produces coffee, tea, cotton, etc.*

Population Boom

The population boom in Kenya has been making the matters worse. The population has been increasing by over 5,00,000 persons annually, almost at the rate of 3.5 per cent. Like many other African countries, Kenya has been experiencing food shortage. She has therefore to develop the economy substantially through agriculture. At the same time, vigorous family planning programme needs to be launched. Family planning in Kenya has not broken the tradition of having many wives and countless number of children. The Central Bureau of Statistics of the country has remarked that "an economy that has been characterized by high birth rates with a rapidly rising number of children tends to spend proportionately more each year on consumption, including education and medical services. These expenditures then reduce the availability of capital for productive investments needed to create future wealth in the economy." In fact, this is the major crux of the Kenyan economic problem today. No significant amount of domestic saving is available for investment. Shortage of capital investment has been the major bane of agricultural productivity and food shortages. The Kenyan government has been doing its best in boosting production of food and commercial crops through more investments and research.

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For many years Kenya has been importing cotton from Uganda, Tanzania, Egypt and Ethiopia for increasing her textile industries. After the break-up of the East African Community, Kenya started its own programmes for accelerating agricultural production through intensive cultivation and research. Kenya's annual cotton production is still very low and cannot sustain all the textile units it has. Lack of research has been one of the main constraints to cotton production in Kenya. A small grower who is inexperienced has been getting only 300 kg. per hectare whereas he could get 1,000 kg. per hectare if the crop is looked after properly. With good planning in the agricultural sector, Kenya can avoid the mistake which the industrialised countries have realised that industrial production must progress side by side with farm output. It is encouraging that the Government has now embarked on some significant irrigation schemes. Of these, the Bura Irrigation Scheme is worth mentioning. When it is completed by the year 1983, it would provide livelihood to 30,000 people and would irrigate about 1 lakh hectares of land. It is hoped that production of sugar, cotton and food stuff will improve tremendously within the next five years or so when the benefits of research, irrigation schemes and other inputs are made available to cultivation.

Kenya wants to attract foreign investment which could create more employment.

Socio-Economic advancement

Economic planning in Kenya is on sound footing though the targets, both financial and physical, are a bit exaggerated as is the practice in almost all developing countries. Yet, however, there is no doubt that through her development plans, Kenya has managed to make a tremendous socio-economic advancement in the last 17 years to the envious admiration of many a Third World nation. Presently, the country is in the process of implementing the Fourth National Development Plan (1979-80 to 1982-83). The growth of the national economy has been projected at an average rate of 6.3 per cent per annum. Amongst the major objectives of the Plan are creating an equitable distribution of income and giving special attention to the needs of specific less advanced groups within the nation. Alleviation of poverty and creation of more employment opportunities are the other basic aims of planning. In 1979, the increase in GDP was 3.5 per cent against 5.7 achieved in 1978. It is now estimated to be of the order of 4.5 per cent in real terms in 1980. The rate of inflation in Kenya has been fluctuating from year to year, anywhere between 9 to 13 per cent in recent times. The target for increase in per capita income is 3 per cent per annum but on the present reckoning, it would require an annual GDP growth rate of 7 per cent and investment should be of the order of 24 per cent. The task is therefore formidable as there would be capital shortage for investment. Domestic savings of such a high magnitude cannot be generated. On a long-term plane, the country has to solve the problem of growth through population control as well.

Export Oriented Production

To combat domestic inflation and to strengthen her foreign exchange position a shift in emphasis from import substitution to resource-based export-oriented production is involved. Due to the not-too-happy position in foreign exchange, the development programme cannot go on at the rate envisaged in the Plan. In 1979 Kenya spent K£ 133.2 million in foreign exchange on petroleum and this amount represents 24 per cent of the country's foreign exchange earnings from the export.

The total exports are of the order of K£ 400 million. The major items of export are coffee, tea, petroleum products, meat and meat products, hides and skins, cement, pineapples (canned), etc. The important importers are West European countries, Canada, the U.S.A., Africa and the Far Eastern countries. The total imports of the country are in the range of K£ 600 and K£ 700 million, creating a severe trade deficit. The major items of imports are food and live animals, mineral fuels, lubricants, chemicals, manufactured goods, machinery and transport equipment. The countries from where goods are imported are almost the same where Kenya exports its own products. Invisible inflows, notably in the form of tourism, transportation, freight and insurance have been increasing in the recent years. The Kenya External Trade Authority (KETA) is making strenuous efforts in exploring markets for Kenya to sell her raw and manufactured materials. The KETA is eager to expand her overseas trade because a few industries in the country are running below capacity and there is a very small market locally.

The country wants to attract more investors from European countries who would be interested in its products. Through foreign investment, more employment will be created. According to the Economic Commission for Africa (ECA), there will be over 60 million unemployed people in Africa by 2000 AD and Kenya will also witness deceleration in total employment. Although the flow of foreign capital is expected to exceed the planned target, the overall deficit in the Plan is also likely to mount up to K£ 203 million as against the surplus of K£ 60 million predicted in the beginning of the current Plan.

Radical Measures

To give a filip to the economy, Kenya has to undertake some radical measures. The balance of payments position should be corrected by controlling imports and improving exports. On the domestic front, inflationary pressures should not be allowed to grow through increases in deficit financing. Agriculture needs to be modernised and scientifically organised. External borrowing is not a good remedy as ultimately it spoils the international reputation for credit worthiness. In fact, the country's financial circumstances do make out a positive case for slashing down the Plan targets substantially along with a reduction in the average annual growth rate of 6.3 per cent. Obviously, reduced economic growth accompanied with a population growth rate of 3.9 per cent would mean reduction in the per capita income in future. The current Plan envisages a 3.8 per cent average annual increase in employment opportunities based on the assumed growth rate of 6.8 per cent for the economy. As such, the new employment will also be less with reduction in economic growth target. The solution would lie in adopting more and more labour-intensive projects in future.

Today, the industrialised countries are the major suppliers of Kenya's vital manufactured products and they continue to raise their prices, arguing that they are doing so because of the rise in oil prices and worldwide inflation. This has caused serious problems of debt servicing, lower foreign exchange and deficit budgets. It is pertinent to note that during the period of oil price hikes by oil producing countries, there has been a relative price decline of agricultural commodities on the international market resulting in a continuing decline in Kenya's international terms of trade.

Alleviation of Poverty

There is an urgent need for mass mobilisation and awareness both in agricultural and industrial sectors of the economy to ensure rapid economic growth and food production. Alleviation of poverty is one of the biggest challenges to be tackled. Poverty for the majority of people continues to be the reality of their lives where basic needs of water, food, housing, health, education and gainful employment are not adequately available. With 80 per cent of the people engaged in agriculture and only 18 per cent of the land being arable, the prospects are frightening for the country unless population growth is controlled without delay. The next few years must be the 'austerity years' for Kenya as a first step. It must cut its imports of textiles, cars and luxury goods. So far the Kenyans have been 'living beyond their means' and this has made the economic problems worse. President Moi has told both politicians and bureaucrats that they cannot go on blaming bad weather. Bad planning, mismanagement and corruption have taken their toll. He has been particularly critical of the Civil Servants' Union, one of the largest and well organised trade unions in the country which has over-indulged in politics to the detriment of good government.

Recently, Kenya secured a big loan from China. It is interest-free and repayable after ten years. This has come at a time when it is going through a financial crisis. If the country sets its foot on the path towards rehabilitating the economy, it can overcome the present problems in a period of say, five years. With political stability in the neighbouring Uganda, Kenya is now in a better position to concentrate on developing its economy. ☐

Fire-resistant Building Sheets

A special process for the manufacture of skimmed fibre compound materials suitable for use in a new type of highly rigid, lightweight building sheets, has been developed within Sweden's Kema Nobel group, according to the group's house journal.

The process provides for phenolic resins to be skimmed with microspheres and reinforced with fibreglass fabric. The resultant material is then processed either into a 1-mm-thick layer of foam or several layers laminated into 5-10 mm sheets. The single-layer material, when applied to plywood, gives it a surface which is smooth, hard, and difficult to burn. At the same time the plywood is made 50 per cent stiffer and needs no sanding.

The laminated material is used as rigid, fire-resistant building sheets suitable for house trailer interiors, exhibition screens, wet rooms, etc. Any desired surface coating can be applied during the lamination process.

(Swedish—International Press Bureau)

Long life Flourescent lamp

A long-life flourescent lamp which can burn for fully 30,000 hours, or more than three times the normal duration, has been developed by Lumalampan AB, Karlskrona, a member of Sweden's KF-Konsum coop group. This has been achieved by improving the electron emitting capacity of the lamp cathodes, that is through the elimination of gas impurities

The new product has the same standard format as conventional fluorescent lamps and is available in three different strengths: 20, 40 and 65 W. It is designed for use at locations where the changing of lights involves a considerable outlay of time and labour. Applications include road and tunnel lighting, illuminated traffic signs, fittings in high ceilings, etc.

(Sip)

Earn while you Learn

UNDER a project called SUPW (Socially Useful and Productive Work) students of Kendriya Vidyalaya, Jammu cantonment have earned a net profit of Rs. 7000 by producing chalk-sticks and candles. The chalk sticks produced not only meet the demand of the Vidyalaya but also other schols. Besides, candles are sold in the local market.

The profits so earned by the students have been deposited in their respective Savings Accounts—which inclucate thrift habit in them. The Small Scale Industries Service Institute is lending a helping hand to the school by providing necessary raw materials.

V. K. Magotra
Field Publicity Officer, Jammu.

A Novel Savings Scheme

ABOUT 200 agricultural labourers of K. Morur, a remote village in Salem district, have been brought under a self-help savings scheme. Nehru Yuvak Kendra, Salem and Builder New India Association, Salem took the initiative in organising "Poor Self-help Society". Each member of the society contributes Rs. 1.40 per week.

Indian Bank, Deevattipatti, has come forward to accept the savings and also to advance loans for viable self-help projects by the society to benefit its members. The society has plans to start remunerative projects from the second year. The savings scheme will be operated for a period of twenty years at the end of which the aged members will receive a lumpsum of not less than Rs. 3,000 each. In the meantime, loans will be advanced to members for house construction, repairs, medical treatment etc.

Oilseed Production

S. D. Chamola and R. C. Hasija*

THERE is an acute shortage of vegetable oils in our country. In an effort to increase the production of oilseeds major emphasis will have to be laid on rapeseed and mustard which occupy about 95 per cent of the total area under oilseeds cultivation. The crops covered under the group 'rape and mustard' are : mustard (rai or raya) brown sarson, toria and taramira.

Oil Production During the Last Decade

Area, production and productivity of rape and mustard have been fluctuating sharply from year to year during the decade 1966 to 1976. The production varied between 53 thousand tonnes to 137 thousand tonnes. Similarly, area under cultivation fluctuated between 104.3 thousand hectares to 211 thousand hectares. As far as the average yield is concerned, range of the variation was from 320 to 694 kg.

The growth rate in production has been lower than that of productivity. The positive growth rate of production and productivity in spite of the fact that area recorded a negative growth rate is indicative of the fact that there has been significant increase in productivity per unit of land. This is an encouraging fact that increase in production has been only due to increase in productivity per hectare and this has even nullified the effect on total production because of decrease in area under this crop.

The factors which affect rape and mustard are (1) competing crops, (2) price fluctuations, (3) unfavourable weather and (4) epidemics. The constellation of these factors act and react in such a way that the crop is influenced not only in the current year but future years also.

The total change in value of a crop is due to change in area, yield and price and other interactions. An analysis has been done for this crop to separate each effect in order to see the individual contribution of each component. The effect of yield, area, price and their interaction in change in the value of rape and mustard for Haryana are shown in Table 1. Total increase in the value of rape and mustard during the period under review (1966-67 to 1976-77) are Rs. 1,17,49,625.91.

Table 1 makes it clear that in this total increase in value of rape and mustard, about 70.70 per cent increase was due to yield effect and 117.98 due to price effect. The area effect was negative. It implies that price and yield were the two factors to bring about an increase in the value of this crop and their positive impact was sufficient enough to nullify the negative effect of area.

TABLE 2

Sr. No.	Particulars	Effect (in %)
	1	2
1.	Yield Effect	70.70
2.	Area	-47.26
3.	Price Effect	117.98
	Interactions :	
a.	Area and Yield	35.05
b.	Price and area	55.83
c.	Area, Yield and price	-41.41

Increasing the yield potentials

Whatever increase in the value of the crop was achieved was mainly due to the changes in prices and productivity. In future more production of this crop has to be obtained from an increase in productivity per unit of land if oil shortage is to be avoided for an ever increasing population.

Fortunately, even in the existing conditions of area and yield there is enough scope for increasing production of rape and mustard. This is due to the fact that there is vast gap between the potentials and obtained productivity of this crop. It has been found that if the available technology is fully exploited, the yield levels can be increased three-fold over the existing yield level.

To exploit this gap for increasing rape and mustard production in the state, there is an urgent need to identify the constraints responsible for this gap. Experts have termed this gap as "extension-cum-Resources Gap". This implies that to translate the existing technology into reality both extension and resources are required. For this, an inter-disciplinary team of breeders, agronomists, pathologists, entomologists, economists and extension specialists will have to be organised for a critical constraint analysis to identify the constraints and recommended appropriate measures. This will have to be done not for the State as a whole but block by block according to the agroclimatic conditions of a particular area/region.

What specific role has to be given to each discipline needs intensive investigations and research work. The direction of future research will depend on two factors :

1. to visualise the future problems.
2. whether we have the facilities at present to face the future situation.

Breeding and Genetical Research

At present there are not many varieties responsive to irrigation. Currently about 90 to 95 per cent of

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the area under rape and mustard is rainfed. Since the area under irrigation is increasing, the farmer may like to grow it under irrigated conditions.

To increase the production of rape and mustard there is need to develop separate varieties suitable for mixed cropping. Research should also be carried out simultaneously for the improvement of oil quality. For this we need to develop low crucic acid which is at present as high as 50 per cent to 60 per cent.

There is also need to develop varieties which would be suitable for various types of crop rotations like Toria-wheat, Toria-sugarcane, Toria-onion etc.

Since most of the varieties are damaged by frost, there is need to evolve frost resistant varieties.

Agronomical Research

With the available varieties of rape and mustard, their agronomic requirements like time of sowing, spacing, seed rate, fertilizer requirement and plant protection have already been worked out and recommended for general adoption. Technology is existing to increase the yield levels from the existing average yields to atleast three times. There is lack of extension work to bridge this gap between the research station and farmer's field.

With the coming up of new plant types (dwarf types like suphala etc.) there is every possibility that some dwarf types with high yield potential might come up.

At present conventional research is done on irrigation, fertilisers, spacing etc. in agronomy. In future, agronomic aspects must also include the understanding of crop physiology like photosynthetic efficiency, population stresses, soil and water stresses and understanding of those phenomena which are lacking at present.

Entomological and Pathological Research

In Haryana the major diseases of rapeseed and mustard are Alterneria blight, rust, downy mildew and powdery mildew. In recent years, phyllody, gummosis and root rot/stem rot diseases are becoming more prominent and may become more serious. To tackle the existing problems and problems likely to become prominent in the fast changing cropping patterns, the research work should be done on the following lines :

1. Evaluation of rapeseed and mustard germplasm against various pathogens to find out multiple source of resistence.
2. To study the sources of perpetuation, mode of dispersal, life cycle of various pathogens and disease cycle to know weak link for combating different diseases.
3. The disease-forecasting system should be developed.
4. To develop integrated control measure for important diseases.
5. To assess the losses caused by each disease for fixing priorities on problems. Threshold values should be worked out for every disease so that there may be judicious use of the fungicides.

Economic Research

The rape and mustard crop is higly risky crop. Efforts are needed to stablise the income of the farmers. Research in the field of economics of rape and mustard should concentrate on the following :

1. There is need to work out the ways and means for insurance of this crop which is full of risk and uncertainty arising due to frost, epidemics and other natural hazards.
2. There is need to study the economics of various crop rotations involving this crop.
3. Economics of various fungicides, insecticides, pesticides etc. should be worked out. The same is lacking at present. □

Lucky Lambanis

KURUDIHALLI LAMBANI HATTI is one of the most backward tribal settlements in Challakere taluk of Chitradurga district of Karnataka. A few years ago about 75 families belonging to semi-nomadic Lambanis were accommodated near Kurundihalli. Each family owns on average three acres of dry land. Due to inadequate rainfall and consequent small income Lambanis have been working as coolies and agricultural labourers and also engaging themselves in basket and mat making to utilise their sparetime and to supplement their income.

Some time ago the Department of Geology conducted a survey in the area to discover the underground water resources and to the good luck of the tribals, the efforts did yield fruitful results. The PWD proposed a bore-well lift irrigation scheme at a cost of Rs. 3.62 lakh. The Scheme was approved by the Karnataka Government. The work of Kurudihalli bore-well lift irrigation scheme was taken up on December 4, 1980 and was successfully completed in a record period of less than 30 days, an example said to be first of its a kind in Karnataka. The project would irrigate 160 acres of land owned by tribal families. The project consists of, four bore wells with a total capacity of over 56,000 gallons of water and two sump points measuring 8x8 mtrs.

With this gift from Government, the Lambanis can now raise three crops in a year and their annual income is expected to go up by Rs. five to six thousand. □

M. N. Shankar, Field Publicity Officer
Chitradurga

Non-conventional Edible Oils in Tamil Nadu

P. Pillaiyar*

Tamil Nadu has a potential of about 90,000 tonnes of rice branoil, 40,000 tonnes of cottonseed oil, 700 tonnes of maize germ oil and 1,000 tonnes of mango-kernal fat per year. Fuller exploitation of these hidden sources would not only help to tide over the edible oil crisis to some extent but also lead in establishing various agro-based industries and creating employment opportunities.

CONSIDERING the present trend in population explosion and better longevity coupled with greater care and urge for leading comfortable life by all concerned, the demand for oil in the years to come would surpass the projected demands. The vegetable oil requirement for Tamil Nadu by 1983-84 would be 10.64 lakh tonnes, but as per the production plans envisaged this State would be able to produce only about 6.13 lakh tonnes of vegetable oil provided the targetted production is realised—a thing which is rather difficult to achieve. So in the years to come every effort is to be made for utilizing the alternate available hidden sources of edible oil. Quite promising among them are rice bran oil, cotton seed oil, maize germ oil and mango kernal fat.

Rice Bran Oil

Because of its low linolenic acid content and its capacity to lower serum cholesterol level, rice bran oil is considered to be a high class edible oil. Though the State has a potentiality of 1,08,500 tonnes for this oil by 1983-84, at present a meagre quantity of about 3,000 tonnes of rice bran oil per annum, that too industrial grade, is being produced in the State as against 80,000 tonnes in the country. By suitably adopting the latest technologies in rice milling and stabilization, rice bran oil of edible grade can be produced from out of the entire potentiality available.

Cottonseed Oil

Cottonseed is another rich potential source of edible oil which is yet to be fully exploited. Cottonseed contains on an average 20 per cent oil. In 1977-78, this State was having a potential of 36,600 tonnes for cottonseed oil but its actual production in this State is very poor. There are five expeller units with an annual crushing capacity of about one lakh tonnes of seeds per annum and two solvent extraction plants with an installed capacity of 15,000 tonnes of cakes engaged in the production of cottonseed oil in the State. But the actual production is less than 10,000 tonnes of oil per annum; whereas in the entire country 1,42,000 tonnes of cottonseed oil was produced in 1977-78. The main reason for the low production of cottonseed oil is that the whole cottonseed is being used as cattle feed.

Maize Germ Oil

It contains most of the essential fatty acids and is an excellent oil for those suffering from arteriosclerosis and ailments related to myocardial infraction.

Out of seven lakh tonnes of maize produced per annum in the country, production in Tamil Nadu accounts for only 20,000 tonnes, and from this, 14,000 tonnes of maize germ which will provide about 700 tonnes of maize germ oil can be obtained. If integrated maize milling plants are established in Tamil Nadu, large area will be brought under maize creating more potential for maize germ oil.

Mango Kernel Fat

India produces 89,25,000 tonnes of mangoes per annum of which 3,71,000 tonnes are from Tamil Nadu. Based on an average of 10 per cent of stone to fruit, 37,100 tonnes of mango stones would be available in Tamil Nadu. This is equivalent to a potential of about 10,000 tonnes to dry mango kernel and 1000 tonnes of mango kernel fat per annum; whereas in India, there is a potential of 30,000 tonnes of mango kernel fat. The current production of mango kernel fat in India is about 850 tonnes whereas in Tamil Nadu, though there is one mango processing plant in old Baltagundu, it seems that there is no effort in the industrial utilization of the mango stones.

Tapioca seed oil

Tapioca seed contains 26 per cent oil and 18.5 per cent protein. By milling, 18 per cent oil could be recovered. This oil belongs to edible category. The physical and chemical properities of tapioca oil resemble those edible oils like gingelly, sunflower, and niger seed. Though the possibility of utilizing tapioca seed for extracting edible grade oil has been indicated, further work on the economics of growing such varieties for tapping the oil potential besides the starch (tuber) is needed.

Considering the need for mopping up whatever sources of edible oil is available in this State, no effort should be spared in planning for better utilization of oils present in cereal, fibre, fruit and tuber crops. Such an effort would, besides providing the much needed vegetable oils for this State, pave way for establishing small and large scale industries and better employment opportunities. ☐

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Small-Scale Industries in the Economic Reconstruction

Dr. Niranjan M. Khilnani*

BOTH in historical as well as in contemporary times, the unique excellence and superb quality of Indian handicrafts and fabrics have excited the wonder and admiration of the whole world. During the ancient epoch, ladies of Athenes and Rome never considered their elaborate wardrobe complete unless they were stocked with muslims, silk brocades, exquisite shawls and satins of India. The filmy undyed muslins (malmal) was and is to this day, woven of so fine a yarn as to require 250 metres to weigh a pound. The Kashmiri shawl is so delicately woven as to pass through a small wedding ring.. Zebunisa, the daughter of Aurangzeb used to wear the Malmal gown in one hundred folds and still earn the wrath of her orthodox father that she was not observing the royal decorum. Indian cotton prints and silk brocades fascinated the women of Rome in much the same way as these products enchant the present fashion centres of New York, Paris and London. Specimen of the Indianness or painted calicoes used by earlier Egyptians Greeks and Romans now lodged in museums in Rome, Venice, Milan and the United Kingdom attest to the high quality of Indian workmanship. Even today it is possible to find in Delhi and Varanasi the weavers whose forefathers made brocades for Nurjahan, the glamorous queen of Jahangir. Such was the grandeur and beauty of Indian woodcraft and the silken touch of its cotton textiles that both Marcopolo and Vasco da Gama gave such alluring reports to their respective sovereigns in Europe that they lost no time sending expeditions to India.

Not only is the quality of the products of small-scale units high, but they have always been good earners of foreign exchange. Sir Jadu Nath Sircar tells us that even during the seventeenth century, the the exports of the Indian products used to bring substantial income to the Royal treasurer. More so at the present juncture when the sluggish economy has to be pulled out of its stagnant phase, the medium scale industries can impart both the speed as well as the propelling drive to the entire industrial structure. From the estimated Rs. 3,420 crores in 1973, gross value of the output by 1978 reached about Rs. 7,800 crores. This provided employment to about three million persons. Exports from the small-scale sector increased from Rs. 637.45 crores in 1975-76 to Rs. 875.23 crores in 1976-77 showing an increase of 40 per cent over the previous year. The share of small-scale industries in the country's total exports improved from 15.9 per cent to 17.1 per cent during 1978. The Ministry of Commerce has already initiated new and improved procedures to give a fillip to exports as well as to coordinate and correlate the production targets with the medium and large-scale industries.

Next to Japan and Switzerland, India produces machine tools and many types of other consumer goods in the small and medium scale sectors. It is these sectors which need to be revitalized. The advantages of a more rapid growth of the small-scale sector are threefold; it will create more jobs, the foreign exchange reserves will rise because of enhanced exports and the decentralisation of industries and their wide-spread scattering will create a sense of a participation in large rural areas in the process of industrialisation-cum-modernisation. This would reduce the gulf between the country-side and the cities. Both the rural India and urban India will find a common ground. This also will relieve the villagers of their district that they are being exploited by the more sophisticated townsmen. It is necessary to secure simplification and decentralisation of licensing procedures to restrict the import of goods produced by the small-scale and cottage industries sectors at home and to liberalise necessary imports for young entrepreneurs. It is equally important to improve further the quality of goods produced in the small-scale sector.

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Industrial Extension Service

One of the admirable features of the present progress in the field of small-scale industries is the growth of the industrial extension service of the Small Industries Development Organisation (SIDO) which aims at providing technical, management and consultancy service to small-scale industrialists in the fields of prospective investment, preparation of project reports, upgrading the skills of workers with a view to strengthen the competitive position of the small-scale sector. This aspect of the small-scale industries in India would also attract the attention of economic planners in the developing countries, in the Andean region of South America, the Central American Common Market countries, the Carribbean States and some West African countries where similar experiments are being made. In this context, India can also provide or lend them the expertise on a short-term basis. The exchange of Indian administrators connected with small scale industries with their counterparts in these countries on a short-term basis can prove mutually beneficial.

According to the survey of the World Bank in March, 1978, giving encouragement to the growth of small-scale enterprises was the best way to benefit the mass of non-agriculture job-seekers in the developing countries. The conventional pattern of large scale industries requires investment of about $ 15,000 or more for each new job. This is far in excess of the capital resources available to poor countries. For example, 71 small loans totalling 14,000 dollars given to the Phillipines in 1975, to assist small-scale industries there, helped create 1,700 jobs. Besides, low cost jobs in industry, have a multiplier effect, leading to the creation of about three times as much employment in service activities, where the cost per job is usually even lower. Small scale enterprises open up employment opportunities, help nurture entrepreneurial talent and technological innovation, contribute to community stability and often reduce environmental pollution than do large factories. About two-thirds of the employment in the industrial sector of the developing world still originates in small scale enterprises. Thus their expansion increased productivity and enhanced qualitative standards; both are vital to the overall growth of the economy. In turn the growth of small-scale sector will help and supplement the role of heavy industries in the national economy.

Far-reaching Social Changes

The development of the small-sector industries may produce far-reaching social changes in the country. It has been estimated by sociologists that by 1981, 53 per cent of the Indian population would be under 36 years; that means the younger segment of population would become politically, socially and economically more important. Hence the greater need for channelising the resurgence and potentialities of youth in constructive directions. Establishment of mini-industrial units in extensive areas of the rural sector and in the small towns would provide the Indian youth (both at the entrepreneur level as well as the level of workers) fruitful opportunities for self-expression and for increasing their material well-being. The Indian youth feel frustrated because they do not have assurance that their educational and scientific talents would be fully utilised. Their active participation in the small-scale industrial units would ensure job satisfaction for them. There is yet another social implication. Increasing the small and medium sectors of our economy would strengthen the backbone of society and thus curb social unrest. As is well-known the middle and lower levels of society function like the spinal column of a social structure. They support and sustain the social fabric. In 1989 the French Revolution could have been avoided if the then French Royalty had strengthened the weaker sections of the French society. An integrated and region-wise development of rural industries and small-scale industrial units in towns would also introduce the democratisation at social and economic levels. At the same time, the gulf between the rural and urban outlook would be narrowed, thus creating greater coordination and cooperation between the village and the town in the nation. Democratisation of the industrial infrastructure introduced by widespread dispersal of smaller units would usher in a greater degree of democratisation of political structure at the grass-roots. It used to be one of the favourite sayings of Mahatma Gandhi that neither the village well being should be sacrificed at the altar of the town development, nor should towns and cities wither away. The maintenance of a harmonious balance between the two is an indispensable necessity at the present crucial stage of our national growth.

There is no question of competition or confrontation between the big and corporate sector of the industries (which is vital and indispensable segment of the industrial sector) and the small and medium-scale sections of industrial processes in the country. As a matter of fact, the smaller sector in an inevitable by-product of the industrial infrastructure. The small and medium tiers of the industrial order can and do supply vital ancilliary parts of industries. They also can specialise in qualitative excellence of consumer goods such as carpets, ivory and horn products, honey and fruit-canning industries and shawl weaving and gold and silver embroidary products. In the age of speedy industrial production, small-scale units dispersed widely in all parts of the country, can supplement the industrial growth in a substantial way and also add in a significant manner to the employment potential of the country. □

Lemon Tea

A new technology for making lemon tea has been developed at the Central Food Technology Research Institute, Mysore and it has been favourably commented upon by the Tocklai Experimental Station of the Tea Research Association. The lemon flavoured tea can be taken hot without milk. It has the additional advantage of 50 per cent more cuppage. The Tocklai station hopes to develop more such tea flavour blends with cinnamon, rose and vanilla flavours in the coming months. □

Reaching the Remote Villagers

V. Sripati Rao*

A NATIONAL WORKSHOP on the Communication Strategy for Integrated Rural Development was organised at Rajendrangar, Hyderabad. The Workshop, convened by the Ministry of Rural Reconstruction, involved major functioneries of communication besides administrators in charge of the programme

The broad objectives of the Workshop were : to assess the present communication strategies adopted by various agencies and to formulate a national strategy for coordinating the effort made by various media in enlisting participation of the people in general and beneficiaries in particular of Rural Development Schemes

Recommendations

The Workshop at the end of its deliberations made several recommendations on the administrative, organisational, training and monitoring services on communication strategy for Integrated Rural Development. It recommended the Central and State ministries in charge of Rural Reconstruction to constitute suitable organisational set-up to identify the problems and to evolve a proper strategy for communication support. Such an organisatonal set up should have links even upto the village level. The Workshop felt that there should be political commitment at higher levels. Therefore it was felt necessary that politicans were given an orientation training in rural development programmes and practices. Similar orientation was of course required for officers in charge of various projects and schemes enabling them to know the activities of the media. There should be a continuous evaluation of pre-project, simultaneous and post-project communications to put the issues in right perspective. The Committee also recommended for creation of an appropriate structure at national, state, district and lower levels to coordinate the efforts of various media agencies in communicating the messages and similar set-up for a feed back service.

A few other suggestions made at the Workshop were as follows : Utilisation of the existing machinery at the district, block and lower levels to the fullest extent; discouraging the traditional top-down form of communication process and instead, introducing a bottom-up communication strategy; to use traditional modes and methods of communication in traditionally backward areas; exploitation of exhibition medium in rural and remote areas; providing training on rural sociology for communication personnel working in rural areas; establishing village forums at the grass root level for inter-personal communication; using super-8 technology to reach remote areas and to infuse objective thinking in the minds of communicators etc.

Shri S. C. Verma, Secretary, Ministry of Rural Reconstruction, Government of India, in his key-note inaugural address stressed the need to reach the rural masses and also to motivate them towards greater achievements. He felt that professional communicators had important role to play in achieving this task. Whether it was, radio, T. V. the spoken word or the printed word, it had to convey to the people effectively that economic opportunity was awaiting them, he added.

Shri S. K. Rau, Director General of the NIRD Hyderabad was of the view that the content of communication programme must evolve from the people's own expression of problems, needs and intensions. To achieve this bottom up communication flow against our traditional, an overwhelmingly top down process, was not so easy. Nevertheless, the urgency of achieving it was not eliminated or reduced.

Shri J. S. Yadava, Professor and Head, Communication Research, Indian Institute of Mass Communication and that communication, instead of being just an adjunct of development project, should be made integral and essential component right from the very intitial stage of project planning.

Among those who participated in the Workshop were Shri P. S. Mehta, Director (Technical Publicity and Exhibitions) Small Industries Development Organisation, Shri P. B. Barthakur. Director, Directorate of Advertising and Visual Publicity, Dr. S. S. Shashi, Joint Director, Publications Division, Smt. A. Pandit, Programme Officer, Ministry of Health and Family Planning, Shri V. Bhanumurthy, Director (Public Relations), Ministry of Agriculture and Rural Reconstruction, Shri Girish Vaidya, Joint Chief Producer, Films Division, Shri R. Thukral, Editor. Kurukshetra, Shri S. Rajaram, Station Director, AIR Jullundur, Shri R. Narayan, Deputy Director, Directorate of Field Publicity and Shri M. L. R. Mathur, Additional Director General, Information and public Relations, Government of Maharashtra. ☐

Better Farming on Black Soil

The research at the International Crop Research Institute for Semi-Arid Tropics, Hyderabad has made significant headway. According to one of its findings both rabi and kharif crops can be grown on the same piece of black soil with assured rainfall. This has opened up new vistas for the development of agriculture in black soil regions of the country. Now millions of acres of black soil land are left fallow during rainy season as the farmers find them too sticky to cultivate.

The new technology involves the shaping of land into graded broadbeds and furrows to facilitate cultivation and surface drainage and preparation of seedbeds during dry season and sowing dry just before monsoon. This helps reduce run-off and erosion during rainy season and make better use of water.

The ICRISAT proposes to make use of this technology on watershed development and crop improvement in black soil farms in Tadannapalle Village in Andhra Pradesh. ☐

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*Our Senior Correspondent and Yojana (Telugu) Editor, Hyderabad

Integrated Child Development

Uma Joshi*

Under the ICDS, a network of Anganwadis in the project areas has vastly strengthened the infrastructure

CHILDREN'S PROGRAMMES have been accorded the highest priority in the social welfare sector of India's Five Year Plans. The strategy in this regard has been to make a concerted and coordinated effort to deliver a basic minimum package of health, nutrition and educational services in an integrated manner to the vulnerable mother (expectant and nursing) and the young child (0-5+years).

> *It has to be appreciated that since child labour cannot be abolished as long as poverty persists at the present level, legislative effort could more suitably be directed to bettering the terms and conditions of children's employment. Instead of prohibiting it below a particular age it would be better to allow it for selected jobs in the organised sector, with suitable safeguards against the exploitation of children.*

A proposal for an Integrated Child Development Services (ICDS) Scheme was initiated by the Planning Commission as early as 1972, in some selected rural/tribal blocks and urban slums with the following objectives :—

1. To improve the nutritional and health status of children in the age group 0-6 (0-5+) years;
2. To lay foundations for the proper psychological, physical and social development of the child ;
3. To reduce the incidence of mortality, morbidity, malnutrition and school drop-out ;
4. To achieve effectively coordination of policy and implementation among the various departments to promote child development; and
5. To enhance the capability of the mothers to look after the normal health and nutritional needs of the child through proper nutrition and health education.

This Centrally sponsored Scheme, with 100 per cent financial assistance from the Government of India, is being implemented by the Department of Social Welfare, Government of India through the Departments of Social Welfare in the States. Under the Scheme a network of Anganwadis in the project areas has vastly strengthened the infrastructure for the distribution and delivery of supplementary nutrition to the young child and mother. A great deal of effort has undoubtedly been put in for getting the ICDS projects off the grounds. The Anganwadi workers have been appointed and trained in large numbers. There is an increasing awareness of the potentials of the projects, though with differing programmes and the emphasis on each. However, the projects are still facing serious teething problems. As such, it would be unrealistic to be optimistic about the state of organisation of the scheme till certain basic preliminary tasks are successfully performed.

The Programme Evaluation Organisation of the Planning Commission has in its Report on the state of preparedness of the ICDS Projects (1976) pointed out that there is an inadequate understanding by the project authorities of the inter-se priorities among the different components of the Scheme—health, nutri-

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The strategy in children's programmes is to make a concerned effort to deliver a package of health, nutrition and education to the mother and child.

tion and education. There seems to be an over-emphasis on the last of these three items owing to the fact that implementing departments and training institutions have traditionally been dealing with women and child social welfare activities in particular. The Report further adds that the training contents and choice of institutions need to be reviewed in terms of suitability of job training in relation to their job performance.

The pre-primary education for a thin segment of target population, of 3 to 5+years is the main activity under the Scheme. It is necessary that the much needed health and nutrition education is developed and the various activities under the ICDS receive the right type of attention. This is all the more necessary in view of the fact that the problem of child labour in India has now become more serious and its gravity is quite visible in the project areas under the ICDS. Thanks to the several loopholes in the four-decade-old Employment of Children Act, which prohibits the employment of children below 12 in plantations and those below 14 in factories, violations of it even in the organised sector have gone either unnoticed or unpunished. It is necessary that children below the age of five years are adequately looked after in respect of their health and nutrition so that later they do not become victims of ill-health or disease

A major contributory factor for the alarming rise in the incidence of child labour is poverty, which compels the victims themselves, to become willing accomplices of the employers' in circumvention of the law. Rising rural impoverishment and unemployment have been swelling the ranks of the child labour force steadily as families below the subsistence level need the extra income brought in by children to make both ends meet. The country's child labour force has now reached the figure of 16.5 million. The actual figure may far exceed this estimate if the thousands of 'helpers' are also included. They are generally employed in mines and factories. Working for a pittance at back-breaking jobs for as long as eight to ten hours a day, these unfortunate children often conspire with their employers in hiding their plight thanks to the starvation that faces them otherwise.

Till recently, child labour was confined to cottage industry and farming but now it has spread to several hazardous fields in urban areas where the nature of the job and the working conditions often take a heavy toll of the physical and mental health of the children. It has to be appreciated that since child labour cannot be abolished as long as poverty persists at the present level, legislative effort could more suitably be directed to bettering the terms and conditions of children's employment. Instead of prohibiting it below a particular age it would be better to allow it for selected jobs in the organised sector, with suitable safeguards against the exploitation of children. It must also be ensured that their early start in a vocation does not cripple the children for life. There is an utter need for providing for stiffer punishment along with a more vigilant and effective enforcement of the law. Then only schemes of child welfare will be able to succeed in pockets of poverty in this country. ☐

Cheap Infant Food

A cheap and nutritious food called the "Soy-Whey Food" has been developed by the National Dairy Research Institute Karnal. It will cost only about Rs. 8 per kg. whereas other cereal weaning foods or milk-based baby foods cost upto Rs. 30 per kg. It will meet the requirement of first solid food for babies. It contains about 23 per cent protein, 20 per cent fat, and 50.5 per cent carbohydrates. It is fortified with vitamins and iron. ☐

Tribals March Ahead

Agriculture in the Ninaka village of Santrampura block, district Panchamahals had been depending on the monsoons, though there was plenty of water in a nearby culvert. Advised and inspired by Shri Virajibhmi Munia, a local social worker, the tribal farmers of the village formed a lift-irrigation society and Jhalod branch of Bank of Baroda gave the necessary financial assistance. In a short time, the lift-irrigation project took a practical shape, and it, now, irrigates about 300 acres of land of 19 tribals. These tribals are now leading a better life and are also paying back the instalments of the loan to the bank regularly.

F.P.O., Godhra

A Call For Justice

Anil Agarwal*

THE DEMAND that health should be available to all is essentially a demand for a basic minimum level of social justice in a world so sharply divided between the rich and the poor. And the wide gap between the health-haves and the health-have-nots is growing wider. Mortality rates are generally regarded as good indicators of the level of health achieved by a country. But the latest assessment of the world health situation made by WHO shows a disturbing situation. In many developing countries, mortality rates are no longer dropping; in some, they are even showing signs of increasing. Child deaths constitute more than 50 per cent of all deaths in several developing countries.

"Globally, there has been some improvement in the world's health", says Dr. Halfdan Mahler, Director-General of WHO. "Yet, how can we speak of progress", he asks, "when a new-born child in some African countries has only a 50-50 chance of surviving through adolescence; when four-fifths of the world's popultion living in slums and rural areas have no access to any permanent form of health care; when only one in three persons in developing countries has reasonable access to safe water and adequate sanitation?"

Millions of persons are suffering from filariasis and from the river blindness. The scale of the suffering is often missed when quantified in abstract millions. Probably it can be better understood if we say that persons equal to the total population of the Soviet Union is today suffering from filariasis; a section of humanity equal to total population of the United States of America is urinating blood because of schistosomiasis; a population equal to that of Japan, Malaysia and the Phillippines put together is sweating and shivering with malaria; and a population equal to that of Iran is suffering from river blindness.

Every year over five million children die from diarrhoeal diseases in the Third World. This is equal to the number of children born in the United States of America, the United Kingdom, France, Sweden and the Netherlands put together. Diarrhoea is now regarded as no more than a nuisance in the developed world.

This situation clearly cannot continue : politically, socially, morally and economically. The mounting pressures for change are reflected in the unease with which ministries of health across the Third World are beginning to ask what has gone wrong : why are the health services failing to meet the needs of the majority of the people ? How is it that health professionals, trained by the State with such pride and at such cost, do not want to work where they are needed most—in the villages and urban slums of the developing world ? How can resources be raised at the scale required to meet the problem ? An urgent search for alternatives is on.

Basic need

Health is not just something desirable. It is a basic need of every society if the individuals who constitute it are to be economically productive, and not a drain on its limited resources. The green revolution, for instance, could not have been possible in several parts of the world if malaria had not been controlled. And wherever malaria is increasing, it is a potential threat to agricultural productivity.

Studies conducted by the Institute of Development Studies in Sussex, England, show that for millions of the rural poor illness at specific times of the year can become an economic disaster and a cause of further poverty. The landless, whose numbers are increasing rapidly, find work mainly during the cropping season. Should the breadwinner fall ill during this period, the entire family may well have to starve for the rest of the year.

Unfortunately, peak agricultural activity tends to occur in periods with maximum risk of sickness, especially in countries with a monsoon type of rainfall. That is when mosquitos and other vectors proliferate and diseases like malaria become widespread, and when water-borne diseases such as diarrhoeas and dysenteries record a massive jump. That is also the time when rural health services, because of bad communications, are the least effective. One bad illness at such a time can well mean poverty ever after for a landless family. Ill-health and poverty thus reinforce each other to keep the poor in a vice-like grip.

The nations of the world have now, through their resolutions in the World Health Assembly, called for the achievement of "Health for All by the Year 2000". How is this to be done, when the North-South dialogue has come to a virtual standstill and there are few prospects of a massive transfer of resources from the developed North to the poor South, and the financial resources of the South itself are limited ?

The way out

Many health experts now believe that there is a way out despite the apparent lack of resources, and that the solution lies in a radical transformation of the medical technostructure, greater self-reliance among nations and communities, and in a re-definition of what we mean by health. Health in the rich countries—and, because of their influence, in the poor countries too—has become too much identified with curative medicine, doctors, hopsitals and with high cost technology. Health is looked upon almost as a commodity that can be purchased in a supermarket and the role of the individual in taking care of his own health has been minimized.

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* Freelance journalist

The challenge for the "Health for All" movement is to find a health service that people can afford and in which people themselves can play a major role. More than 50 per cent of the total health care in any society is still handled within the family. Communities are capable of taking the responsibility of health care into their own hands, and must be enabled to do so. The support of the medical services is required only in those cases which demand special skills. Communities are also capable of takings the root causes of disease, such as malnutrition, insanitation, inclean drinking-water, and bad housing.

But to get this community participation going, many superstitions will have to be removed. The new superstitions created by the medical system, which only help to maintain its dominance and keep the community and the patient in a state of dependence, will have to go just as much has the old superstitions born out of illiteracy and ignorance. Both medicine and medical technology will have to be demystified and brought closer to the people.

Health professionals will also have to take a multisectoral approach to health issues. Just as health contributes to economic development, the economic and social conditions of a society contribute to the health of its people. The health of the world's poor, for instance, is the combined result of their unemployment, economic poverty, scarcity of basic goods, a low level of education, poor housing and sanitation, malnutrition, social apathy and the lack of initiative to force the pace of change. Health problems cannot be interpreted entirely in terms of medical problems. This is just as true of the developing countries as of the developed. The problems of traffic accidents, or of the care of the aged, smoking or improper infant feeding practices. cannot be solved by simply creating more human repair centres, however sophisticated they might be. To solve such problems, the health professional will have to tackle the vested interests involved in the other sectors of the economy.

Innovative projects

In hundreds of small, innovative primary health care projects, where a determined attempt has been made to involve the community, and a multisectoral approach to health problems has been taken, it has been found that with an expenditure of just Rs. 50 to 60 per head, the health situation of a community can be radically altered. These experiments, carried out by enthusiastic, dedicated workers in various parts of the world, in different cultures and environments, have given great confidence to those who believe "Health for All" can be achieved by the turn of the century.

Stilll if this target is to be achieved, the nations of the world will have to substantially increase the resources currently available for health care and also ensure a better redistribution of these resources. The world today spends on cigarettes almost twice the amount by both the public and private health services of the Third World—including China—put together. The rich countries are today spending more on tranquillizers than what the public health services of the poorest 67 countries of the world (excluding China) spend as a whole. Many countries spend less than 1 per cent of their GNP on health services. It would not be unreasonable to expect that the expenditure on health services shoulld increase to say 2 to 3 per cent ot the GNP in such countries.

Equitable distribution of these resources is equally vital. In many countries, a national hospital in the capital, which mainly serves the urban rich, consumes nearly half the country's health budget. In one Asian country, the average expenditure on drugs per patient in an urban hospital is 15 times more than the expenditure on a patient in a rural primary health care clinic. Expensive medicines are often unnecessarily prescribed in urban hospitals, while the same expenditure could have been used for treatment of a number of rural malaria patients receiving no care.

Vested interests

The vested interests involved in the existing system of health care will obviously feel threatened by the "Health for All" movement and oppose its concepts. The "Health for All" movement, simply defined, aims at that level of health which allows every member of a society to lead a socially, culturally and economically satisfying life.

The current world situation in health requires not quibbles over definitions but courage, conviction and bold, radical well thought-out measures. Governments have to pick up the courage to insist on social equity and decentralization in decision-making; the health-related industries need the courage to produce material that brings more health than just profits; professionals need the even more extraordinary courage to share their knowledge with the communities with a sense of humility and also to be prepared to learn from them; and, the poor communities themselves have to pick up the courage to stand up and challenge the existing health structure.

In fact, more than the medical system, the concept of "Health for All" challenges the prevailing concept of development : the idea that human communities are passive receptacles of a "future" that has been outlined for them by someone else. It is their future and they must decide it and make it. And only when they do so will "Health for All" be achieved. Clearly, "Health for All" is still a deam, and may even remain one, but there cannot be a more worthwhile dream at this juncture of history. □

Corrections

In our Issue Vol XXV|3 dated 16th Feb. 1981, on page 14, the name of the author has been given as Dr. Y. Nayudamma. It should be Shri K. C. Shroff, Excel Industries, Bombay.

In the same issue, on page 17, in the Table II, under 'Mining Quarry', the figure given in the first column should be 9.0 not 7.0 as given.

Diamonds Are Forever

Dr. Sharad Kumar*

TODAY, diamond industry has come to occupy a distinct place of importance in the national economy as one of the few export-oriented and labour intensive industries with vast potential for growth.

India was probably first to mine and cut diamonds, and supply them to the world. Famous diamonds like Kohinoor, Great Moghul, Hope, Regent, Sancy, Shah, Narsak and many more were found in India. In 1725 diamonds were discovered in Brazil. With the discovery of diamonds in South Africa in 1866, another source of diamonds was found.

This labour intensive industry employs more than 2.25 lakh artisans in India and earns large sums of foreign exchange. It is perhaps the most paying cottage industry requiring small capital and a workman of average skill.

Production

The diamonds dug out of the mines are called "run of the mines". They are of different shapes, sizes, clarity and colour. They are separated into two groups. Those suitable for making gems are called "gemstones" and those useful for cutting abrasive material are called "industrials."

It was only after independence that some organised efforts were made to increase production of diamonds in the country. National Mineral Development Corporation (NMDC) a Government of India Undertaking, is trying to augment production from the mines in Andhra Pradesh with the help of Russian experts. The annual production of rough diamonds in India is hardly 0 005 per cent of the total world production.

While the total deposits in Panna region were estimated to be 11.60 lakh carats in February 1979 the monthly consumption of roughs was more than 14 lakh carats during 1977-78. So all the indigenous resources known so far are not enough for even one month for the diamond industry, nor we can expect that the indigenous production will increase to the level of consumption in the near future. So the diamond industry has to depend on imported rough diamonds for its survival as well as for further development.

Diamond Cutting Centres

The diamond cutting in India, originally was started by small bands of craftsman in Varanasi and Panna region. Today it extends throughout the State of Gujarat, in Bombay and in certain parts of Rajasthan and Delhi. But 80 per cent of diamond cutting is done in Surat, Navasar, Ahmedabad, Palampur, Bhavnagar and Rajkot. While Surat is the biggest diamond cutting centre, Bhavnagar is known for single out and Navasar for full cuts. Bigger size diamonds are mostly cut in Bombay.

Imports of Rough Diamonds

The indigenous production of rough diamonds is very meagre and the country is entirely dependent on imports for our cutting and polishing industry. The imports of rough diamonds have been increasing over the previous years. According to the statistics published by the Gem and Jewellery Export Promotion Council of India the imports of roughs has increased from 3.71 million carats valued at Rs. 47.80 crores in 1974-75 to 16.89 million carats in 1977-78 valued at Rs. 321.30 crores and 19.33 million carats valued at Rs. 470.40 crores in 1978-79.

The Diamonds Trading Co. Ltd. (DTC) London also known as the Central Selling Organization, or as "Syndicate" handles and controls almost the whole supply of gems and industrial diamonds in the free world. While major portion of supplies of roughs for DTC comes from the De Beers Consolidated Mines Ltd. of Kimberley, diamonds are also secured from other mines in South-West Africa, Tanzania, Congo, Angola, Sierra Leone and other West African Countries. U.S.S.R. has arrangements with the DTC for marketing roughs which its own industry does not use.

Exports of Diamonds

Though India has been known as home of gem diamonds, it was only in 1962 that some organised efforts were made to export gems. With the establishment of Gem and Jewellery Export Promotion Council in the year 1966 the exports of Gem diamonds have gone up enormously. The exports of polished diamonds grew from a scratch to a staggering figure of $ 866.18 million (Rs. 692 90 crores) in 1978-79 The import of rough diamonds and exports of polished diamonds from 1970-71 to 1978-79 are shown in the table.

India's Imports of Rough and Exports of Polished Diamonds

Value in $ million.

Year	Total Imports of rough	Total Exports of diamonds	Imports as % of exports
1970-71	24 03	34 81	69%
1971-72	29.78	46.80	63.6%
1972-73	47.94	73.70	65%
1973-74	77.89	97.46	80.9%
1974-75	57.16	107.85	53%
1975-76	97.88	123.85	79%
1976-77	215.74	288.81	74.7%
1977-78	376.79	544 03	69.3%
1978-79	588 02	866.18	67.9%

Source : Director-General of Commercial Intelligence and Statistics, Calcutta and "Gems and Jewellery".

It will be seen that there has been eight fold increase in the exports of diamonds from 1974-75 to 1978-79. The growth in exports has been at a remarkable pace since 1976-77 onwards. The average percentage of import to exports during 1970-71 to 1978-79 has been 66.6 per cent. In 1979-80 the export of polished diamonds suffered a serious setback and declined by about 22 per cent over then peak level of $ 866.18 million in 1978-79. The reason being poor demand from consuming countries on account of rising prices and recession in the diamond industry all over the world.

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* Lecture in Commerce Regional College of Education Bhopal (N.C.E.R.T.) .

The most important factor which makes diamond exports attractive is the high value added to the imported roughs. The ultimate value of a polished diamond depends on what are known as four "C'S", viz., clarity, colour, cut and carat weight. A diamond without any impurities i.e. clear and extra white, with good quality cut, fetches the highest price.

Types of Diamond Cuts

There are numerous types of popular cuts evolved over years by trial and error methods. The best known and popular cut is the "Standard Brilliant" also known as "full cut" or "double cut". It has 58 facets. Single cut has 16 facets and is confined usually to very small size diamonds. Other types of cuts are known as "Emeralds" and "Baguette" which are both rectangular in outline. The number of facets and the type of cut depends on the shape and size of the rough.

The Indian diamond industry which has come to occupy the third place in the world is facing a stiff competition from Belgium and Israel. Though our diamond industry consumes 50 per cent of the annual production of rough diamonds in the world, still we have to go a very long way. The task force appointed by the Government on Gem and Jewellery, in its interim report has estimated that the exports of diamonds can be increased to a tune of Rs. 2,000 crores by 1982-83.

While it is true that India enjoys unique competitive position in the cutting of small size diamonds popularly known as "Maakbais", our technique and tools for diamond cutting are undoubtedly outmoded resulting in relatively poor quality of finish and higher wastage factor in cutting. The setting up of Indian Institute of Diamonds at Surat by the Gem and Jewellery Export Promotion Council is an important landmark which will help in training craftsmen in modern techniques of diamond cutting and polishing.

Regardless to say, the diamond industry is entirely indigenous and has no foreign collaboration. The time has now come that we should publicise the fact that India can cut the world's best diamonds and can process, bleach and drill pearls.

The Hindustan Diamond Co. Ltd. and Gem and Jewellery Export Promotion Council jointly organised a seven day fair in Feb., 1981 on "Indian Jewellery" in Bombay. The fair has given a big boost to our exporters who were unaware of its vast potentiality in the Gulf region and other Middle East and West European nations. □

Tomorrow's Parents Today

Problems of Adolescent Fertility

Jagmohan*

"Tomorrow's parents—Today", an aspect of family planning has so far remained neglected. Public must be made aware of the need for attending to the social and medical problems of adolescent fertility.

I hardly need to emphasise the importance of family planning in our country. In India, 33,000 children are born every day, and more than a crore persons are added to our population annually. If the present trends in population growth continue, we will have to build 1,000 new school rooms, 1,000 new hopsital wards and 10,000 houses every day for the next 20 years. It should be obvious that no nation, much less a developing country like India, can have resources to build on this scale.

No technique which is not simple, inexpensive, and not capable of application on a large scale, is likely to yield results. In India, sterilization seems to be the simplest and the most effective method. This method was invoked on a large scale in the year 1976-77. Over 17 million sterilizations were carried out. However, this programme was brought into disrepute, primarily because of false propaganda, and was abandoned. But, underneath the surface, the distinct advantages of this programme are visible. Millions of people, who got themselves sterilized, have, now, no doubt that sterlization has no ill effect. They are, in my opinion, the best advocates of family planning in their community. In Delhi's resettlement colonies, where 700,000 people were resettled in 1976, you see a noticeable change in people's attitude towards family. The bastion of conservatism has been breached, and the programme of family planning need to be pushed through dynamic, educational and community involvement processes, and also by evolving and applying simple techniques of sterilization and medical termination of pregnancy.

In the developing world, today's young people know more about the world and expect more from it than their parents did. Nevertheless it is our duty to make them increasingly aware of the problems of adolescent fertility and enlist their support in acquiring greater success in the national family planning effort.

Lt. Governor, of Delhi. From his speech delivered at the inaugural function of the seminar organised by the Family Planning Association of India and its New Delhi Branch on November 4, 1980.

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Vinca Rosea—the Anti-Cancer Plant

Dr. S. H. Iqbal*

CANCER, the most dreaded disease responds to surgery and radiation methods only when it is detected at a very early stage and is localised. But, unfortunately, by the time the disease is detected, it has spread to other organis of the body. Then the answer lies only in chemotherapy.

A large number of anti-cancer drugs are now being used and many more are undergoing clinical trials. Although intensive efforts have been made to synthesise various alkylating agents and other antimetaboli tes, the results are not encouraging due to the high reactivity of these compounds with many cell-constituents which reduce their therapautic index. For these reasons, greater emphasis is being laid on natural products which may act as selective alkylating agents on the growth regulatory biological macromolecules.

The most important anti-tumor agents derived from plant products are the two dimeric alkaloids, vinblastine and vincristine, and are being clinically used for the last two decades. Both these products are obtained from a common Indian plant Vinca rosea (Catheranthus Roseaus). Recently, a group of scientists working at the National Chemical Laboratory have successfully developed a cheap and commercially viable method for the isolation of vinblastine in the form of its sulphate from the leaves of Vinca Rosea for commercial exploitation. Each 10 mg vial of this drug, totally imported today, costs Rs. 136. The cost by NCL's process is expected to be significantly less.

Vinca Rosea is grown in a number of tropical and sub-tropical countries including India. It is widely cultivated as an ornamental plant in gardens. The plant requires very little irrigation and can be raised as an off-season crop in agricultural fields.

Antitumor properties

In Indian medicine the plant was known to possess hypoglycaemic properties. A group working at Eli Lilly (USA) discovered accidentally, in 1955, the tumor inhibiting properties of this plant extract. This led to the isolation of more than 66 alkaloids from different parts of this plant; the dimeric alkaloids have shown anti-tumor activity. Since the active principles are present in small amounts, enormous quantities of the dried plant material will be required for commercial production.

The two dimeric alkaloids, vinblastine and vincristine, have aroused a lot of interest among pharmaceutical companies all over the world because of their anti-cancer properties.

Vinblastine sulphate is a cytotoxic drug that arrests the cell growth in the metaphase and is used mainly for the treatment of Hodgkin's disease and other lymphomas and choriocarcinomas. Vincristine sulphate, which also shows effects similar to vinblastine sulphate, is far more efficacious from the therapeutic point of view, and is particularly effective in the treatment of acute leukaemia in childhood.

World Demand

The United States is the world's largest importer of Vinca Rosea leaves. The main pharmaceutical company, Eli Lilly, extracts more than 1000 tonnes of these leaves per annum.

In view of the demand of the leaves for export, enterprising farmers took up cultivation of the plant on a commercial scale in South India. It is understood that 2000-3000 acres were brought under cultivation in Ramanathapuram, Tirunelvelli and Chengalput Districts of Tamil Nadu. However, for the past three years, the quantum of export had suddenly fallen due to large scale cultivation of the plant in other parts of the world (U.S., Europe and African countries). It is therefore desirable to undertake the isolation and export of the important individual alkaloids, for otherwise, we will not be utilizing an abundantly available natural resource.

NCL's contribution

The two dimeric alkaloids, vinblastine and vincristine, are present in the plant in insignificant quantities. Vinblastine constitutes around 1 to 2 per cent of the total alkaloids of the plant, and vincristine content is approximately 100 times less. (The total alkaloids present in Vinca rosea are about 1 per cent of the plant.) The isolation of the two dimeric alkaloids is therefore carried out by employing complicated processes. There are several reported methods for their isolation, but all of them involve tedious separation methods thereby making the process difficult.

Many groups in this country during the past few years have been attempting to isolate these two compounds. Work on isolation of the active alkaloids from Vinca rosea was initiated at the NCL in 1979 under the sponsorship of the Government of Maharashtra and with considerable inputs of its own.

The NCL scientists have now developed a simple and convenient method for the isolation of vinblastine as its sulphate by entirely avoiding tedious procedures. The percentage of vinblastine sulphate thus obtained by the NCL process is between 0.03 and 0.04 per cent on the basis of the weight of dried leaves, depending on its quality.

A feasible method for isolating vincristine sulphate is now being worked out. Simultaneously, efforts are also being made for converting vinblastine sulphate to vincristine sulphate. ☐

*Head of the Technical Services Division, National Chemical Laboratory, Pune.

Construction work in BRPL

Petrochemical Industry in Assam

R. N. Bezbaruah

OIL was struck in the NE Region as early as the last part of the 19th Century. But the Region could not make much progress in the establishment of petrochemical industries, on account of varied reasons. Some thinking and activity in this direction has been evident from the late 50s. During this period, Gauhati refinery was set-up. To utilise the natural gas, the Assam Government obtained a few letters of intent to set up industries, like carbon black, polyethylene, polybutadiene rubber, a gas functioning unit. However, due to one or other reason, all licenses got revoked except one small unit of calcined coke at Gauhati. Then in 1970, a small refinery and a petrochemical complex with a narrow base was finalised.

Assam, because of its crude oil offers better scope for development of petrochemical industries than what has been developed in Gujarat based on Naphtha from crude oil produced in Gujarat or in other regions of the country based on mostly imported naphtha. The high aromatic content in naphtha produced from Assam crude is more suitable for the production of important chemical raw materials which can be utilised for manufacturing a host of petrochemical end-products such as synthetic fibres, plastics, synthetic rubbers, detergents, etc.

The Committee set up by the Ministry of Petroleum and Chemicals, Government of India, in January 1974

(Continued on page 42)

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*Our Senior Correspondent and Editor, Yojana (Assamese), Gauhati

TRENDS

Railways in Sixth Plan

The Sixth Five Year Plan (1980-85) outlay for the Railways is Rs. 5,100 crores. Most of this amount will be spent on rehabilitation, consolidation and electrification programmes of the railways. About one lakh wagons (4-wheelers), 5,680 coaches, 390 EMUs and 780 diesel electric locomotives would be acquired. About 14,000 kms. of track would be renewed. Electrification of 2,800 kms. would be undertaken besides starting some pre-energisation works. The break-up of Sixth Plan outlay under major heads is as follows :

	(Rs. in crores)
1. Rolling stock	2,100
2. Track renewals	500
3. Electrification	450
4. New lines	330
5. Traffic facilities	480
6. Workshops and sheds	280
7. Machinery and plant	230
8. Metropolitan transport projects	255
9. Bridge works	90
10. Signalling and telecommunication	90
11. Outlay on other heads like staff quarters, welfare etc.	245
Total	5,100

In the first seven months of the year 1980-81 there was a shortfall of 15.30 million tonnes in the target of revenue earning traffic. Immediate steps like separating wagons fitted with roller bearings and centre buffer couplers from conventional wagons, transporting essential commodities like foodgrains, fertilizers, cement and coal on an 'express' stream of freight traffic, end-to-end running of through goods trains with the same electric or diesel engine, were taken. These improvements and innovations boosted, in February, 1981, the average loading of wagons to 10,002 from 8,521 per day, with coal. Overall loading of goods has also improved significantly.

The Railways have taken a number of steps to improve catering services. Base kitchen at some stations on important routes have been set up from where ready-to-serve meals are lifted for the long-distance mail and express trains. Food materials are procured by the departmental catering units from standard sources so as to ensure their good quality. Departmental catering staff is being trained at some catering institutes.

Interest on Post Office Deposits raised

THE GOVERNMENT OF INDIA has decided to increase the rates of interest of 1-Year, 2-Year and 3-Year Post Office Time Deposits as follows :

(i) 1--Year Time Deposit.—Increase from 8 to 8.5 per cent annum. (ii) 2-Year Time Deposit . Increase from 8.5 to 9.5 per cent per annum. (iii) 3-Year Time Deposit : Increase from 9 to 10.5 per cent per annum.

The new rates will be applicable to Time Deposits made on or after 2nd March, 1981. The interest will be calculated after every six months.

Importance of Computer in Planning

COMPUTER had a crucial importance in Sixth Plan formulation and it will increasingly find application as a management too in the Planning Commission's task of managing the economy. This was stated in New Delhi recently by Shri Mohd. Fazal, Member Planning Commission while addressing a Convention of the Computer Society of India. The four-day Convention was inaugurated by the Vice President, Shri Mohd. Hidyatullah.

Shri Fazal said, "Indeed on the software side, we had the potential of becoming a major exporter. On the hardware side too, we have the advantage of possessing an abundance of skilled and semi-skilled labour. The field of electronics, as you know, is highly labour-intensive." He further said that it was somewhat ironical that within the country itself there remained tremendous untapped potential for utilising the benefits of computer technology. Shri Fazal referred to the remarkable recovery made by Japan after the last World War. This was possible because of the stress laid on the development of electronics.

Honey Revolution in Punjab

THE Department of Entomology of the Punjab Agricultural University, Ludhiana has introduced the Italian honey bee in Punjab. At present, about 170 persons including ex-servicemen, landless labourers and small farmers and housewives, have taken up bee-keeping as a subsidiary occupation. In 1980, about 85 quintals of honey worth Rs. 1,70,000 was produced by the bee-keepers. A second benefit of the honey bees is that they pollinate the crops and thus increase farm production. This second benefit is of much more value to the state than the price of the honey.

Ancillary Development

A carefully worked out, time-bound programme for ancillary development will be drawn up. It will aim at widespread dispersal of industries and growth of enterpreneurship. This was stated by the Union Minister for Planning, Shri N. D. Tiwari at a symposium on "Planning for Small Industries in the Eighties", at Madras recently. Shri Tiwari said that for ensuring prompt payment for large-scale units for supply of components the Government would examine fixing a sub-limit in their bank accounts as well as penal rates of interest on over-dues. ☐

STEP BY STEP

Telecom Schemes in Southern Region

A WIDE BAND microwave scheme with imported NEC equipments and costing about Rs. 15 crores is in an advanced stage of installation. It will connect Salem with Madras in one direction, Salem with Trichy, Madurai and Rameswaram in the second direction and Salem with Coimbatore, Pollachi and Ernakulam in the third direction. When completed by the middle of 1981, the project will provide an ultimate capacity of 1800 high grade trunk circuits.

A 7 GHZ narrow band microwave scheme with an ultimate capacity of 300 circuits and costing about 53 lakhs connecting Coimbatore and Mettupalayam is also under installation. When completed it will help extend STD facilities to Mettupalayam subscribers. Two UHF schemes connecting Gopi with Bhavani and Salem with Attur are nearing completion.

The present 2.6 MHZ (ultimate capacity 600 channels) system between Coimbatore and Salem via Erode and Tiruppur is being expanded to 12 MHZ system with an ultimate capacity of 2700 channels. This project costing about 3.5 crores is expected to be completed in about 18 months. □

Anti-malarial Ayurvedic Drug

WITH a view to providing safe, inexpensive and effective remedy for malaria, the Central Council for Research in Ayurveda and Siddha (CCRAS), an autonomous organisation under Ministry of Health and Family Welfare, Government of India, has developed an anti-malarial drug under the name AYUSH-64, based on Ayurvedic formulations.

The Council has been producing this drug for the last several years in their pilot plant. The Council has already produced lakhs of tablets and conducted extensive field trials by distributing these tablets through their own institutions and centres spread all over the country and through their Mobile Clinical Research Units.

A clinical study on 58 malaria patients drawn from malaria clinics of the Corporation of Madras revealed efficacy of the Ayurvedic drug as good as that of the allopathic drugs.

Four different herbs grown widely all over India are used as raw materials in the preparation of Ayush-64. Besides a few additives like starch, gum accacia, gelatin, sugar and sodium benzoate are also used.

The Ayurvedic formulation, Ayush-64, is found to cure not only malarial and other types of fevers but possible also help prevent malaria.

(National Research Development Corporation of India)

Car Run with Diesel Produced from Coal

FOR the first time in India synthetic diesel oil produced from coal by Central Fuel Research Institute, Dhanbad (CFRI) has been successfully tested at the Institute to run a vehicle. The vehicle was run at an average speed of 40 KMPH and the engine performed statisfactorily in all respects.

The synthetic crude oil was obtained from the CFRI pilot plant and was further processed by vapour phase catalytic hydrorefining in a continuous bench scale unit. The diesel oil fraction obtained from the refined product satisfied the I.S.I. specifications for H.S.D.

Samla Coal of Raniganj field was used in the pilot plant as feed material. From the pilot plant data it is computed that the yield of H.S.D. and napatha would be of the order of 35 tonnes and 12 tonnes respectively for every 100 tonnes of feed coal (with 10 per cent ash and 5 per cent moisture). This excludes the amount of coal required for hydrogen manufacture. It has been estimated that the cost of synthetic crude produced by this process would be well below the current import price of crude petroleum ($ 40 per barrel).

India is presently importing crude petroleum and finished products by spending nearly Rs. 5.500 crores in foreign exchange. Recently a pilot plant with a capacity of converting half tonne (per day) of coal to oil has been established at a total cost of Rs. 40 lakhs. The National Research Development Corporation of India (NRDC) and the Indian Oil Corporation (I.O.C.) have given financial support for this project. □

Indigenous Relays and Contractors

THE BHEL's Heavy Electrical Equipment Plant at Ranipur near Hardwar has successfully manufactured relays and contractors, hitherto imported from abroad. These are used in the Control Panels being manufactured by the BHEL for steel and aluminium plants.

Nearly 7,000 relays and contractors with completely indigenous materials have already been manufactured and tested at the Hardwar Plant resulting in foreign exchange savings of approximately Rs. 35 lakhs.

The Hardwar Plant has also supplied over 1600 control panels for the four million tonnes expansion programme of Bhilai Steel Plant and an additional 600 control panels for the Bharat Aluminium Complex at Korba in Madhya Pradesh.

The contractors and relays have been subjected to live tests and have withstood 10 million operations. As per a study conducted by Statistical Control Unit of the Indian Statistical Institute, these units have shown a high degree of reliability in operation. □

Udyan Pandit

RAO Nawal Singh Yadav, a small farmer of Makraula village (Gurgaon district, Haryana) has earned the 'Udyan Pandit' award for 1980, his 1.5 hectare orchard being considered as the best managed one. He cultivates the 'Gola' variety of 'Ber' fruit in his farm. The fruit weighs 60 gm against the national average of 30 gm. Two years ago Shri Yadav got Rs. 30,000 (gross) from the orchard and he hopes to earn at least Rs. one lakh this year. □

BOOKS

A Scholarly Treatise

Inventory Management—Published by Institute For Financial Management and Research; Madras, India; June 1980; pages 173, Price Rs. 40.

THE book under review is a pioneer work in field of inventory management and based mainly on the empirical analysis of Survey conducted by Prof. A. V. K. Iyengar. In addition to questionaire, bibliography and index, the book has eight chapters. The study points out that how companies are managing their invetories in India.

I fully agree with the author about the policy of adhocism of the Indian companies in the matter of inventory control. The study very well emphasises the need of adopting tighter and more frequent control over inventories with the fixed cycle method.

The study also reveals that out of 1650 companies only 209 companies having paid-up capital of Rs. 200 lakhs and above, account for more than 54 per cent or the aggregate inventory holdings. The inventory holdings of 141 public sector undertakings excluding the Food Corporation of India was as high as 4039 crores as on 31-3-1978. This shows that the reduction of inventory and its effective management at the macro-level lies in the hands of the large companies which constitute a small percentage of the corporate sector.

In fact this book is a scholarly treatise on the invenory management. In all 55 tables and charts have been incorporated in the book to make it more interesting and understandable.

The book can be a novel addition in the file of inventory management. It is very valuable to the managers who are entrusted with the task of production, marketing and finance; and usual to various canalising agencies and banks.

This is a welcome addition to the subject and can meet a long felt need of managers, bankers, financial institutions, researchers, students of M. B. A. and other bodies interested in the management of inventory and higher productivity at low cost.

S. N. Kulkarni

An Excellent Manual on Health

Where There Is No Doctor.—a village health care handbook by David Werner. Adapted for India and published by Voluntary Health Association of India, New Delhi, Pp 500, (Illustrated) Price Rs. 29.

The author of this sensible, easy-to-read handbook has spent 13 years in the mountain areas of Mexico helping to form a health care network now run by the villagers themselves.

Originally written in Spanish and translated into many languages, its main aim is to set out concise, simple framework for community health workers, but at the same time, it is a book that is easily accessible to anyone who cares about health : one's own and that of others.

In the present edition many chapters of this book have been rewritten by the Voluntary Health Association of India Team to suit the Indian conditions. Many illustrations have also been redrawn.

As David Werner points out, "health care is not only everyone's right, but everyone's responsibility".

Amply illustrated with simple and accurate drawings, the book sets out to demystify much of medicine. Werner covers home cures that work and don't work, the right and wrong uses of medicines, how to examine and care for a sick person, healing without medicines, the basics of nutrition, and prevention of sickness, first aid, diseases and care of the skin, eyes, teeth, and mouth, urinary tract and genitals, information for mothers and midwives and a large section on the health and sicknesses of children. There are clear sections on how to recognise, common diseases and ailments, examples of sickness that are easily confused, and when to get further medical help for someone who is dangerously ill.

It is a book that does not purport to be the 'law'. In fact the author suggests that for it to be fully useful, it should be adapted and supplemented with local needs and customs. It is a resource book, one to keep near at hand for continual reference to expand upon, to grow with you as you learn and grow : an organic book !

It is a handbook written with love and care by someone who sees the importance of sharing his knowledge and experience with those around him—and who realise the need to keep an open mind and continue learing. Although primarily a book on health care, its essence lies in the building of a community, of working together. It should be on the top of the list of books to be read by anyone who seeks to help his fellow human beings.

This book deserves to be brought out in all the Indian languages and made available to people at reasonable price.

S. R. S.

Foreign Exchange

Foreign Exchange : Principles by K. K. Andley—Sultan Chand & Sons, Daryaganj, New Delhi; Pages 581, Price Rs. 22.50.

This a good text book on foreign exchange and deals with all the aspects of the subject in a simple language and in an interesting manner. It can particularly be of help to students preparing for the examinations in banking and foreign trade—(P. S.).

India 1980

India—A Reference Annual 1980 compiled by Research and Reference Division, Ministry of I & B, Government of India; Published by Publications Division, Ministry of Information and Broadcasting, Government of India, Pp 580, Price Rs. 36.

This is the 26th edition of Reference Annual and a repository of information on various aspects of our life and activities.

The book under review presents a detailed account of progress achieved in India in different fields like education, culture, social welfare, Planning, agriculture and so on. The work is rendered most attractive, informative, instructive and useful by giving suitable illustrations, photographs, statistics and maps whenever necessary.

The Publications Division has the tradition of publishing very useful books and the present one is another "feather to its cap".

India—1980 is a very rich source of information for research scholars in social, political, economic scientific and other fields.

R. R. Rao

Business Communication

Essentials of Business Communication (Second Edition) by Rajendra Pal and J. S. Korlahalli, Sultan Chand & Sons, 23, Daryaganj, New Delhi Pp. 712 Price Rs. 25.

Effective communication is essential for the develompent of human society and growth, in particular of the commercial world. Business organisations transmit communication internally to their own constituents and externally to other organisations and people for the realisation of their goals. It is this important subject with which this book deals exhaustively in a simple and lucid style. Besides chapters, on the theory and tools of communication it devotes considerable space to essay writing, English grammer and furnishes informations on different expects of day-to-day functioning of business houses. Though a text-book written primarily for students preparing for the B. Com. examination of Madras University and the intermediate examination of the Indian Institute of Secretaries, it can also be used with advantage by persons working at different levels in commercial organisations and those studying management.

G. C. Rangrass

Petro-Chemical Industry in Assam

(*Contd from page 38*)

to study the techno-economic feasibility of new aromatic production facilities based on Assam crude, recommended that, to avoid complexities involved in the large scale movement of feedstock and considering further the desirability of development and industrialisation of the rural areas of Assam and Bihar, setting up of two aromatic complexes—one at Bongaigaon for production of 75,000 tonnes per year of benzene based on naphtha from Gauhati and Bangaigaon refineries and other at Barauni from the naphtha of Barauni would be viable. The setting up of such an aromatic complex as recommended by the committee would provide valuable raw materials for the development of various downstream units for the manufacture of fibre intermediates, synthetic rubber, chemicals such as phenol, acetone etc. and a host of other essential intermediates and finished products in an otherwise industrially backward area

There are some good prospects for setting up of some downstream units based on the products of the Bangaigaon Refinery and Petro-chemicals Ltd. (BRPL). A quantity of about 45,000 tonnes per year of high aromatic extract will be available from the kerosene treating unit at BRPL. The extract may be used as raw materials for the production of carbon black or for the production of benezene.

As there is good demand of paraffin wax in the country, the techno-economic feasibility of separation of Paraffin wax from Low Sulphar Heavy Stock (LSHS) prior to using this LSHS as feedstocks for the cooking unit of BRPL and for their captive power plant is to be studied.

Based on the surplus naphtha, off gases of the cooking unit, gases of the catalytic reformer and other gases of BRPL, it would be possible to install a thermal cracker. This would help in producing much needed olefins such as ethylene, propylene etc. The raw materials would provide base for manufacture of various petro-chemical.

The BRPL will produce 30,000 tonnes of polyester fibre per annum and for utilisation of this fibre a number of Spinning mills could be set up for production of blended yarn by blending polyester with cotton or other materials. As North Eastern region is having neither cotton nor wool, blending will viscose rayon or other materials has to be considered. There is, therefore, a good prospect for setting up a rayon grade pulp unit in Assam based on local bamboo. Wood resources for the production of about 10,000 tonnes viscose fibre and 10,000 tonnes of rayon grade pulp.

The economic development of Assam and N. E. region which was rather slow in the past, would certainly be faster in the coming years with a planned and integrated development plan and at the same time it would meet the rising demand for various chemicals at competitive prices. □

Member nationas of WHO have pledged themselves to an unprecedented health development in the last two decades

Health for All by the Year 2000

continued from cover II

of disease, aware that ill-health is not inevitable. It does mean that people will use better approaches than they do now for preventing disease and alleviating unavoidable illness and disability, and better ways of growing up, growing old and dying gracefully. It does mean that there will be an even distribution among the population of whatever health resources are available. And it does mean that essential health care will be accessible to all individuals and families, in an acceptable and affordable way, and with their full involvement.

That is what primary health care is all about. An International Conference on Primary Health Care that was held in Alma-Ata, USSR, in 1978 issued a Declaration which stated that primary health care is the key to attaining "Health for All by the Year 2000." That same conference called for urgent and effective national and international action to develop and implement primary health care throughout the world and particularly in developing countries in a spirit of technical cooperation and in keeping with a new international economic order. The Member States of WHO were quick to respond to the call. They are now engaged in working out strategies to attain the goal of "Health for All" by means of a new type of health development based on primary health care. They are doing so individually for their own countries, and collectively to ensure regional and global support to their national strategies. But this is only the beginning of the road. These strategies will be converted into plans of action and they in turn will be progressively carried out over the next two decades. The highest United Nations forum, its General Assembly, has welcomed these efforts and has called on other sectors to support them.

All this augurs well for the growing national and international movement to attain "Health for All". In spite of the difficult security situation in many parts of the world and the disturbing economic climate, the widespread political commitment of governments and the enthusiastic support of people everywhere can turn the dream into a reality. We can succeed. We must succeed. If we do not, the children of today, and those who have not yet been born but who will comprise more than one third of the people living in the year 2000, will never forgive us. □

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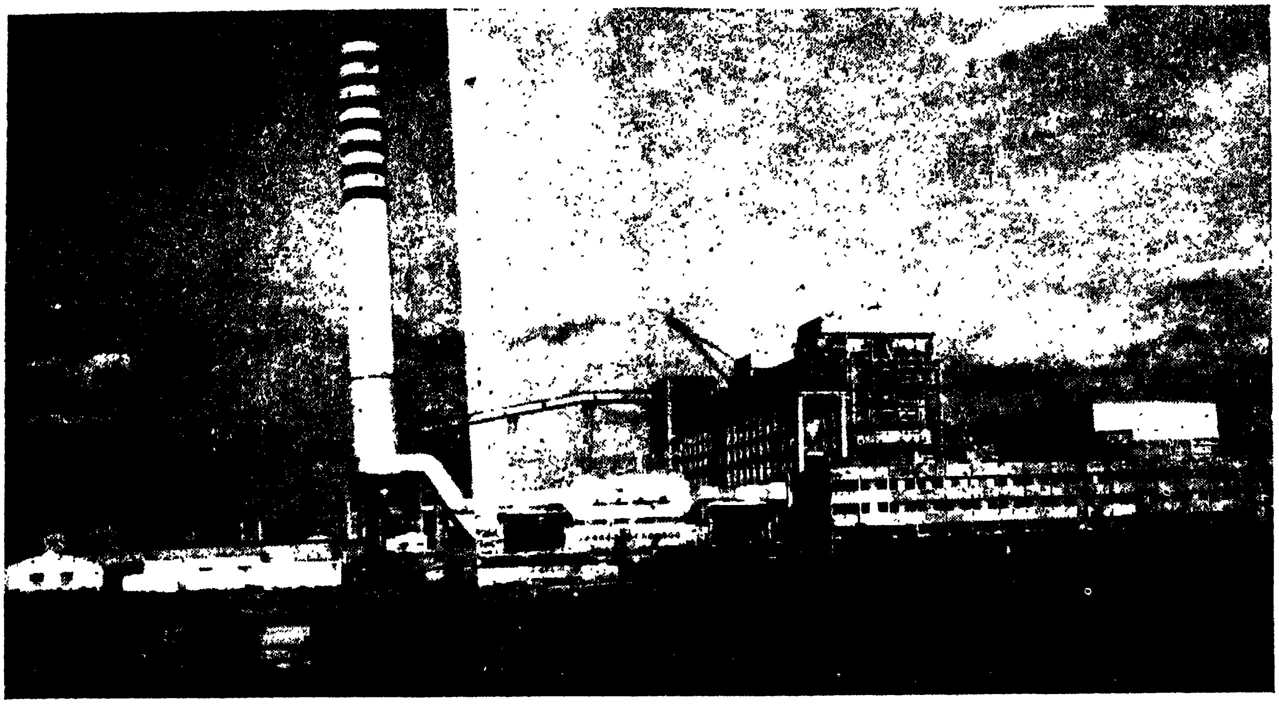

A general view of Vijayawada Thermal Power Station

Vijayawada Thermal Power Project

C. S. M. Rao

A NOTABLE feature of the Silver Jubilee year of the formation of Andhra Pradesh was the dedication to the nation of the Vijayawada Thermal Power Station (VTPS) on January 31, 1981. Set against the backdrop of the Kondapalli range of verdure hills, 16 km. from Vijayawada, this power station of two units of 210 mw was built at a cost of Rs. 194 crore. In the words of [illegible] Chairman and Managing Director of Bharat Heavy Electricals, Shri K. L. Puri "this power house is the pride of all Indian engineers, being wholly Indian in design, equipment, execution and in operation". The significant feature that distinguishes VTPS from all other thermal stations in the country is its cleanliness. As one drives along the Vijayawada-Hyderabad National Highway, one is struck by a 180-meter high chimeny (twice the height of Qutab Minar at Delhi) that does not belch any smoke or fumes. That is so despite the fact that the two units are working at their rated capacity. This has been achieved by going in for higher volume electro-static precipitators which have been functioning flawlessly.

The Prime Minister, Mrs. Indira Gandhi, laid its foundation stone in April 1974 and the actual construction started only in October 1976. Within a short period of 37 months of the plant erection, the first unit was commissioned.

Andhra Pradesh is making rapid progress in power generation. As against the addition of only 62.5 mw during the six years from 1968 to 1974, the capacity added in the subsequent six years ending 1980 was 1630 mw. "Never before in the history of the State or elsewhere in many of the States, so much additional generating capacity was added in such a short period". The installed capacity which is now 2298 mw is planned to go up to 3643 mw by the end of this Plan period, excluding the State's share in super thermal power stations coming up in Andhra Pradesh in the Central sector. ☐

Rising from Despair

A cyclone in 1978 spelled uttar ruin for the 25-years old Sevati Naik and her two year old son, who belonged to Purunabandhagoda village of Keonjhar, Orissa. Rest of the family as well as the house had been washed away. But Sevati did not give in. She applied for a Bank loan which was granted. She purchased a milch cow. Satya Sai Seva Mandal helped her to purchase another cow. Now she is earning her living by selling milk. Her son has started going to school and Orissa Cement Corporation has helped her in constructing a two-room pucca house.

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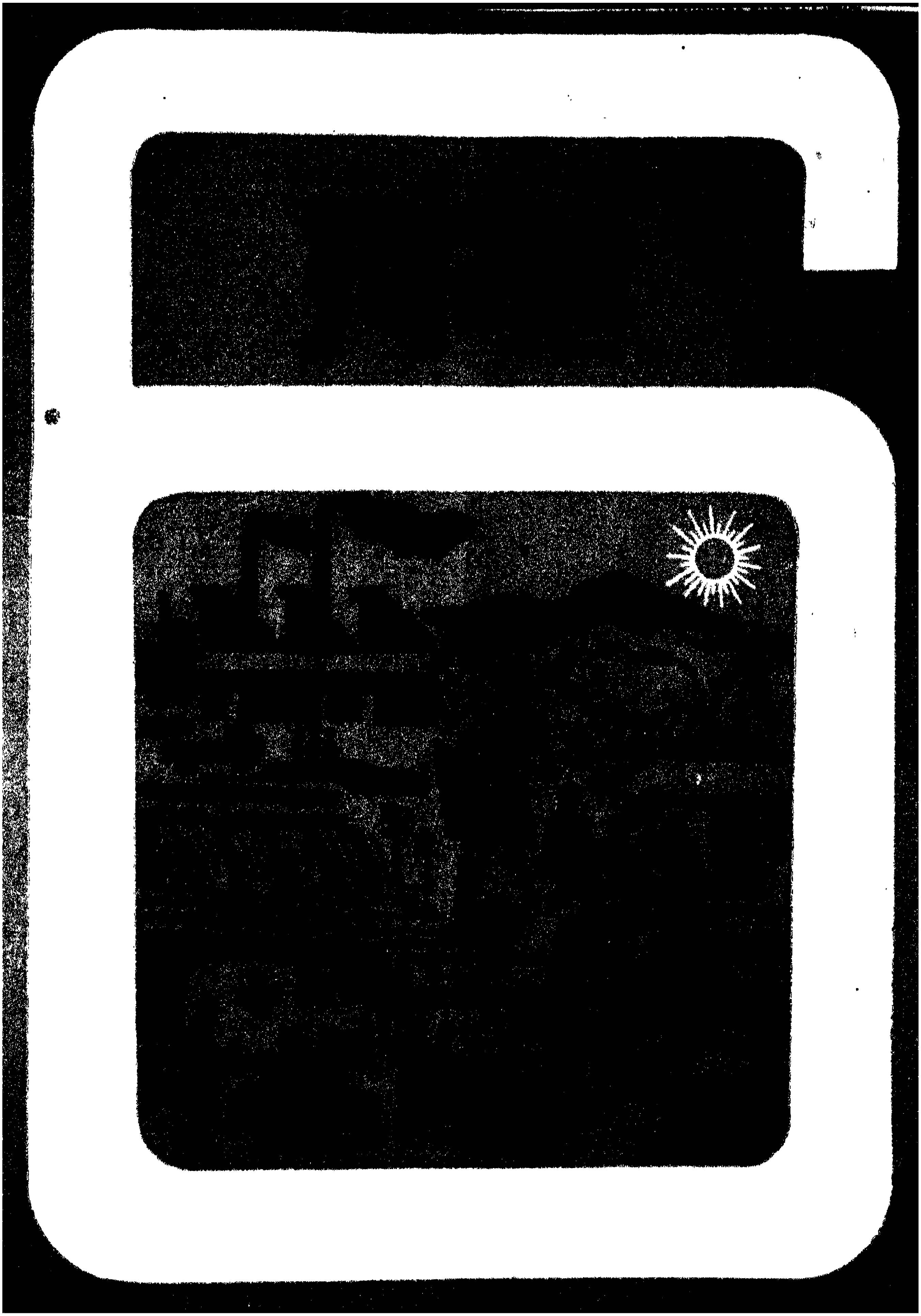
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Processing cooked shrimps at Marine Products Export Promotion Council, Cochin.

Industrialization of Kerala

Gopala Krishna Pillai[*]

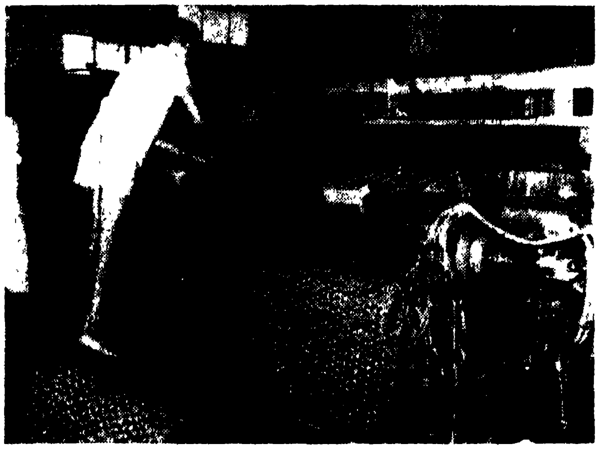
KERALA has immense natural resources and is endowed with valuable industrial raw materials. Among the mineral resources are the beach sands apart from white sands suitable for the manufacture of high grade glass. China clay deposits are also available in plenty. Besides the landscape, the State is blessed with rivers which are idealy suited for the development of hydro-electric power. Transport and communication, which are essential for industrial progress, have developed considerably in the State. Forests occupy 23 per cent of the geographical area of the State and provide valuable raw materials for various forest-based industries. Due to the increase in number of polytechnics Technical Institutions and Craftmen Training Centres, it has an abundant reservoir of educated and trained manpower.

The Government of Kerala launched a programme of starting 1,000 Mini Industrial Estates during the year 1975-76. The main idea behind this programme is to provide employment opportunities, to absorb the educated unemployed and utilize local resources. But only 323 estates could be commissioned of which 190 are functioning at present. These industrial estates give employment to 1.360 persons including working proprietors. Most of the units are engaged in the production of ancillary items for large establishments like Kerala State Electricity Board, Kerala State Road Transport Corporation, Cochin Shipyard, Hindustan Machine Tools, Indian Space Research Organization, etc.

The Government of Kerala endeavoured to create the necessary institutional framework for assisting the development of industries. Kerala State Industrial Development Corporation was formed with a view to encouraging the development of small and medium industries and the Kerala State Small Industrial Development Corporation was formed for helping small-scale industries. Moreover, all nationalised and scheduled banks are extending financial assistance to entrepreneurs to start an industry under various schemes.

Industrialization helps to solve the problem of unemployment. The existence of small and cottage industries, when started, may not last for a long period, unless the government keep a close watch. Selection of entrepreneurs and the industrial units must be made after a careful study of the ability of the entrepreneurs and the feasibility of the schemes. Raw-materials for the use of these units should be made available at the right time, at the right place and at a reasonable price. As most of the units can be started only with government assistance by way of loans, arrangements should be made for allowing repayment of loans on easy instalments at a reasonable rate of interest. Programmes like 'food-for-work' and 'Kerala Stores' launched in 1979 have shown a positive result as the first programme provided 37 lakh mandays of work for the construction of roads in villages and minor irrigation works, while the latter absorbed a few educated unemployed persons. However, it will be appreciated if the Government take adequate steps to propagate their programmes and policies so as to bring them to the notice of the public particularly the educated unemployed. □

Powerloom at the Hindustan Coir Factory, Alleppy



Haryana Sets the Example

HARYANA is selling fish worth about a crore of rupees to Calcutta, Delhi and Amritsar. With its rivers, streams and canals stretching over 18,000 kms. and 2,000 hectares of culturable water in perennial ponds Haryana is producing about 1,500 tonnes of fish annually. The marshy lands are yet to be exploited. This is a grand achievement considering that Haryana has no traditional community of fisherman and most of the local people are vegetarians and the fish culture has been developed during the last 15 years only. □

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Editorial

The Danger Signal

THE massive Census operation is over and provisional figures have been quickly announced. The present population is estimated to be 683.8 millions—an increase of 135 millions in a decade. (The figure may be embarrasingly more if the alleged omission in enumeration in some areas is taken into account.) The population has doubled itself since Independence. The density has increased from 177 persons per square kilometer in 1971 to 221 persons now. Death rate has fallen from 15 to 14 per thousand in the past one decade. The growth rate has slightly come down, from 24.80 per cent to 24.75 per cent.

The increase in population, which has surpassed all expert projections, is really alarming. At this rate our population may grow into 1000 millions in another two decades. With about 48 per cent of people living below poverty line and with shortage of basic facilities and services, it will be very difficult for the country to sustain such a staggering population. It is now doubtful whether the Sixth Plan target of lowering the birth rate from 35 to 30 per thousand can be achieved. It is also to be noted that more than 42 per cent of the people are below 14 years of age and will soon enter the reproduction period. The growth rate being more in the States of Uttar Pradesh, Bihar and Rajasthan, which are also comparatively backward in economic development, is another cause for concern. The facts that the number of males (35 millions) is more than that of females (33 millions), the increase in male literacy (from 39.5 to 46 per cent) is more than that of female literacy (from 18.7 to 24.9 per cent) and the number of tubectomies is more than that of vasectomies, show that male chauvinism continues to persist in our society. Against these undesirable trends it is somewhat comforting to note that the population growth rate has marginally declined (by 0.5 per cent), and that in 19 States, which account for 49.7 per cent of population, the growth rate is less than in the previous Census and that female literacy is increasing even in the backward States.

The provisional Census figures show that the impact of family planning measures has not been strong so far. This calls for redoubled efforts in motivating people in favour of the small family and making the facilities easily available to them. Economic betterment (as in the case of Punjab) and high literacy (as in Kerala) can reduce the growth in birth rate and so family planning efforts should be accompanied by family welfare measures. While compulsion in family planning is ruled out, the government should atleast make child marriage a cognizable offence so that this widely prevalent evil is eliminated.

The Union Health Minister spoke the other day about the Government's anxiety in the matter and pointed out that the Sixth Plan has given priority to population stabilisation. Not only the government, but all parties should realise that the red signal revealed by the Census can be offset only by the red triangle. ☐

Special Article

Sixth Plan : A Broad Analysis

Malcolm S. Adiseshiah*

THE SIXTH FIVE YEAR PLAN 1980-85 has now been established. The Plan represents an important milestone in the country's development.

First, the Plan in 308 roneoed pages of Vol. I and 1105 pages of Vol. II has been produced in an incredible record time, within six months. As against the long time taken in the preparation and finalisation of the Fourth and Fifth Plans which lasted from 2-4 years, resulting in a considerable amount of uncertainty in programme planning and project execution, and resulting also in a final Plan document which appears half way through the Plan period, and, in the case of the Fifth Plan, at the start of its fourth year, which was made its final year, this time the Plan has been approved and established right at the start of the Plan period. This has never been done before on any of the Plans. This speed in plan formulation and finalisation has been possible, because, while undertaking the same extensive consultation on the Sixth Plan Frame as in previous draft plans, there was the political decision to produce the Plan right at the start of the Plan period, which was also possible because there is now a basic continuity in our Plans.

One estimate is that while in the III and IV Plans 60 per cent of the proposed resources to be raised were pre-empted by continuing commitments, leaving 40 per cent of the resources free for new projects, in the VI Plan 80 per cent of funds to be raised are for continuing projects, with only 20 per cent free for initiating new projects. But the real element of continuity is in the Sixth Plan building on the documentation, data and conclusions of the Draft Five Year Plan 1978-83, which in turn drew on the work of the previous plans. This welcome reduction in the Plan's gestation period has had its price. There are later revisions to come,, as is forecast in footnote 2 to Table 2.2 of Chapter II of Vol. I, and there are some errors and omissions as in not allowing for the 1980-81 price rise, and the sharp rise in the savings target for the year 1984-85 against CSO's report of a serious decline in savings from 23.9 per cent of GDP in 1978-79 to 21.2 in 1979-80. But the most serious price that has been paid is that the Plan continued the centralised plan model with the consequent drip down theory, because it has not had time to develop the Plan on the basis of a systems and sub-systems approach as an upward synthesis derived from local plans of what people want and decide to produce to meet these wants.

Perspective Plan

The Plan's 15-year perspective is one of its strongest points. This long term Plan is based on a 5.2 per cent growth for the Sixth Plan period and 5.5 per cent growth for the seventh and eighth Plans and this perspective Plan is developed not only in terms of conventional aggregates like GDP, consumption, and employment, savings, investment but also in relation to poverty percentages, life expectancy, consumption of foodgrains, sugar, cloth, education and electricity. The country's population during this 15-year period 1980-81 to 1995-96 will increase from 672 millions to 864 millions (to be corrected in light of the results of the 1981 census to be published later this month). A rather important conclusion of the perspective Plan is that despite the 50 per cent increase in average per capita incomes in 30 years of planning, poverty persists. It attributes this persistence of large scale poverty to three causes : (a) inadequate economic growth rate, (b) uneven distribution of income and consumption and (c) high population growth rate. And so it makes the significant statement that without a redistribution of income and consumption in favour of the poor, there will not be a significant reduction of poverty. The perspective Plan's target is to reduce the percentage of people below the poverty line from 48 in 1979-80 to 30 in 1984-85 and to 10 in 1994-95.

The Sixth Five Year Plan is an important milestone in the country's economic development. Unlike the Fourth and the Fifth Plans it has been prepared in a record time of six months.

Objectives of VI Plan

The means for attaining this important aim are set forth in the Chapter III dealing with the objectives and strategy of the Sixth Plan which revolve around (a) the growth process of 5.2 per cent per annum which will reduce during the Plan period those under the poverty line from 48 per cent to 38 per cent, (b) the Integrated Rural Development Programme covering 3000 families per block and the redistributive services for the urban poor which will bring 67 million above the poverty line, reducing the percentage to 30, (c) a limited measure of land distribution involving a transfer of 5 per cent of cultivated area from holdings above 5 acres to small farmers and agricultural labourers which will increase the latter's income by 20 per cent and (d) employment generation which is to grow at 4.17 per cent per annum (against the growth of the labour force of 2.54 per cent per annum), including the National Rural Employment Programme which by providing employment during the slack season aims at further helping to bring these families above the poverty line. These measures take us back to the Draft Fifth Plan which proposed transferring 5 per cent of resources from the top 10 per cent to the lower deciles living under the poverty line. But this important measure was a non-starter, because the institutional framework did not allow it : the question whether there can be a redistribution of income and consumption as is proposed in the Sixth Plan without a redistribution of the ownership of assets and wealth must be posed.

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The objectives of the Sixth Plan though set out under ten heads really comprise four major goals—namely :

- a significant step up in the rate of growth of the economy, the promotion of efficiency in the use of resources and improved productivity;
- strengthening the impulses of modernisation for the achievement of economic and technological self-reliance ;
- a progressive reduction in the incidence of poverty and unemployment; and
- promoting policies for controlling the growth of population through voluntary acceptance of the small family norm.

Despite 50 *per cent increase in per capita incomes through* 30 *years of planned development poverty persists. The perspective plan aims at reducing the percentage of people below poverty line from* 48 *in* 1979-80 *to* 30 *in* 1984-85 *and* 10 *in* 1994-95.

The other six objectives are in effect means of achieveing these four purposes, which include one innovation. namely population control. The Sixth Plan for the first time includes in the Plan objectives the truth set forth rather bluntly in the perspective Plan section in the following words : "All the Plan projections of reduction of poverty and unemployment will go wrong if success is not achieved in containing the growth of population". The other three objectives—growth self-reliance and poverty and unemployment amelioration—are continuous with that of the previous plans. On this basis, I am inclined to the view that there is today a national consensus around the Plan objectives.

Outlay and Output

The Sixth Plan growth of 5.2 per cent is based on a total investment of Rs. 158,710 crores, comprised of Rs. 84,000 crores as public sector outlay and Rs. 74,710 crores as private sector outlay. involving an ICOR of 5.6 at 1979-80 prices. This is a high incremental capital-output ratio (ICOR), which takes us back to the Fourth Plan period in accordance with the table 1.2 in chapter I. and which raises questions as to the reality in reaching of the overall and sectoral growth rates of the Plan. The pattern of growth is derived from an open economy model. consisting of an 89-sector input-output model, which also included a 14-sector investment planning model. On the sectoral growth side, gross annual output rates range from 5.20 per cent for agriculture, 7·76 per cent for mining and manufacturing including 11 per cent for electricity, chemicals and non-electrical engineering products and 10 per cent for basic metals, electrical engineering products, transport equipment, 11.25 per cent for electricity, to 7.10 per cent for construction and 6.70 per cent for transport. Taking into account the changing pattern of demand over the Plan period, the structural change that follows in the various sectors of GDP include in terms of value added a decline in agriculture from 35.13 per cent in 1979-80 to 32.90 in 1984-85, a rise in mining and manufacturing from 19.59 to 21.22, in electricity from 1.71 to 1·88, transport from 4.89 to 4.95, and services from 33.61 to 34.00, and a marginal decline in construction from 5.07 per cent in 1979-80 to 5.05 per cent at the end of the Plan period 1984-85. These have also been expressed as rather modest physical targets and the consistency of these Plan quantities has been cross-checked.

This output calls for an investment which as percentage of GDP at market prices rises from 21·8 percent in 1979-80 to 25.1 per cent in 1984-85. This rise is not as high as it seems, for 1979-80 registered a steep fall from the previous year's (1979-80) investment of 23·7 per cent as part of the general declararation of the economy in that year 1979-80. This investment is distributed between agriculture and allied activities of Rs. 33,468 crores of which private sector investment is Rs. 16,101 crores, industry and mining sector investment is Rs. 52,090 crores of which Rs. 30,323 is that of the private sector, power Rs. 23,054 crores of which Rs. 189 crores is of the private sector, transport and communication Rs. 18,956 crores of which Rs. 3390 crores is of the private sector, and others (trade, banking, real estate, public administration) Rs. 28,882 crores of which the private sector's share is Rs· 24,707 crores.

Savings

This pattern of investment is based on domestic savings rising from Rs. 23,055 crores (21.2 per cent of GDP) in 1979-80 to Rs. 35,870 crores (24.5 per cent of GDP), which is a marginal rate of saving of 33.7 per cent during the Plan period, and inflow of foreign resources of 0.6 per cent in 1984-85 or Rs. 9063 crores during the Plan period. One question in the matter of savings and the growth rate which arise is that, while the Draft Plan 1978-83 assumed a marginal savings rate of 35 per cent resulting in gross saving of 25.8 per cent in 1982-83 for a rate of growth of the economy of 4·7 per cent, the Sixth Plan's lower marginal rate of 33.7 per cent and gross savings of 24.5 per cent in 1984-85 expects a higher overall growth rate of 5.2 per cent. The Sixth Plan's domestic savings forecast an increase in the share of the public sector from 17.4 to 24.8 per cent and of the private sector from 7.4 to 8.3 per cent and a decrease of the share of the household sector from 75.2 per cent to 66.9 per cent. This forecast seems to place too high rate of increase of savings as percentage of disposable income of the public sector (from 25.50 to 34.5 per cent between 1979-80 and 1984-85), while that of the household sector is increased at a very low rate from a little over 18 per cent of disposable income to a little over 19 per cent.

Public Sector

The public sector outlay in the Sixth Plan of Rs. 97,500 crores, comprising Rs. 84,000 crores as investment and Rs. 13,500 crores as current outlay, is about equally divided between the plans of the States and the Union Government. The sectoral distribution of this outlay ranges from Rs. 5,695 crores for agriculture, Rs. 5,363 crores for rural development, Rs. 1,480 crores for special areas, Rs. 12,160 crores for irrigation and flood control, Rs. 26,535 crores for energy, Rs. 15,017 crores for industry and energy, Rs. 12,411 crores for transport, Rs. 3,134 crores for communication and information-broadcasting, Rs. 865 crores for science and technology, to Rs. 14,035 crores for social services, including Rs. 2,522 crores for education and Rs. 2,831 crores for health and family planning, as well as Rs. 801 crores for statistics and other activities. The financial resources for this public sector outlay are expected from 11 sources, in each of which except in two (contributions of public enterprises and term loans from financial institutions) there is an increase over the estimates as set forth in the Framework which preceded the final Plan document. The first item, balance from current revenues of Rs. 14,478 crores has some uncertainties flowing from, over 90 per cent of the estimate being the balance from the States whose record in the first year of the Plan has been a deficit of over Rs. 500 crores, the continued provision of subsidies of over Rs. 2,000 crores, despite the flat out assurance of a significant reduction in subsidies in Chapter VII para 7.13, and the change that may be introduced in the States' share of Central taxes by the Eighth Finance Commission. The estimate of public enterprises' contribution which has been reduced to Rs. 9,395 is more realistic than the original estimate in the Framework, but the estimate could be doubled with revised public sector pricing policies and raising of electricity and road transport rates which are shown at rather heavy losses. Another important item is additional resource mobilisation which is split between the Union, Rs. 12,290 crores, and the States, Rs. 9,012 crores. Both these elements are doubtful of realisation. From the Union side, Rs. 5,140 crores are to be raised by additional taxation, but in the first two years of the Plan the additional taxes for the Plan amount to less than Rs. 2,000 crores; Rs.3,250 crores is expected from subsidies reduction, while in the first two years budget subsidies increased by over Rs. 400 crores; and Rs. 3,900 crores are estimated as internal resources from the public sector, which again the first year's record and estimate for 1981-82 for the Railways, P&T and public units do not support. On the States' side, the first problem is to turn around from the huge losses being incurred by their Electricity Boards, Road Transport Corporations and irrigation rates, of which there is little sign in the first two years of the Plan so far.

Private Sector

A word about the private sector which is to invest Rs. 74,710 crores in the Plan period, with Rs. 16,101 crores in agriculture and allied activities, Rs. 30,323 crores in industry and mining, Rs. 189 crores in power, Rs. 3,390 crores in transport and Rs. 24,707 crores in other areas. The Planning Commission is reported to be working on an annual Plan model and a set of guidelines that will ensure that these estimates of private sector finances of the economy are actualised. For financing these activities, the private non-financial corporate enterprises are expected to save Rs. 8,870 crores (which has been realistically reduced from Rs. 9,495 crores) and the private financial enterprises Rs. 183 crores (reduced from Rs. 1,093 crores in the Framework). This means a saving of about Rs. 1000 crores per annum, which is realistic, as at present the two groups of private savings amount to Rs. 950 crores per annum.

Plan Programmes

The detailed programmes in 20 subject areas ranging from agriculture to social welfare set forth in Vol. II are continuous with the past Plan programmes with some important innovations, as in dry land farming, organic recycling and biogas development under agriculture; command area water management under irrigation; special area programmes under Rural Development; appropriate technology under village and small industries; the new deal for the self-employed and the decentralised strategy under manpower and employment; new energy sources under energy; engineering industries under industry and minerals, INSAT under communication and I & B; S&T and rural development, the environment, and States programmes under science and technology, the questionable inclusion of adult education in elementary education under education; the target under the health and family planning programme; rural housing and water supply under housing and water supply; and hill area development, sub-plans for tribals and scheduled castes and women and development.

A Question of Political Economy

Such is a thumbnail sketch of the Sixth Plan, its major financial and physical parameters and forward-looking programmes. In the final analysis, the Sixth Plan once more displays an excellent technical base for planning in the country—the sound manner in which the material and financial balances have been computed, the technically balanced production structures assumed, the income and employment targets derived from notional macro economic national income parameters, the macro economic models which are based on the 5.2 per cent GNP growth, and the investment requirements derived from ICOD, the investment, consumption and the input-output models with balance of payments consequences and the recommended consumption, redistributive policies, and programmes built into the model, the final demand vector for private and public consumption, *et al.* But with all this planning perfection and technical virtuousity, our experience has been that we are not able to attain the Plan objectives and targets. The Draft Plan 1978-83 opened with this rather sad admission : "We must face the fact that the most important objectives of planning have not been achieved. The most cherished goals seem to be almost as distant today as when we set out on the road to planned development. These aims...........universally accepted by the Indian people.........are the achievement of full employment, eradication of poverty, and the creation of a more equal society." This raises the question whether the Sixth Plan needs to be accompanied by the political economy decision on assets and property ownership which determines the kind of economic output and distribution of that output of any Plan and behind it all the political network. In the end the successful execution of the Sixth Plan is not an economic problem but is one of political will, one of political economy. ☐

Gist of Sixth plan--Part V

Policy Framework

THE SUCCESS OF THE PLAN depends on many factors among which the choice of the correct policy framework must be rated as crucial. The suggested policies are as follows :

Growth with Stability

A major task of economic policy in the Sixth Plan is to create the necessary conditions for the mobilisation of resources for development in a noninflationary manner. The control of inflation and generation of stable price expectations are crucial for a successful implementation of the Plan.

Sensible demand management policies will continue to be an important element of an effective package of anti-inflationary policies. Fiscal and monteary policies will have to be so designed as to prevent an excessive growth of money supply. Due attention will have to be paid to the proper phasing of investments so that inflationary pressures are not accentuated. If demand management policies are not to hurt the country's long-term growth prospects, major emphasis must be laid on curbing the growth of conspicuous consumption, preventing diversion of investible resources into low priority activities and on promoting savings so that investment requirements of accelerated growth can be financed in a non-inflationary manner. Thus fiscal and monetary policies will need to provide positive encouragement to savings, particularly to savings in the form of assets which are under social control. In Indian conditions agricultural prices are the kingpin of the price structure.

Recent experience shows that bottlenecks in certain critical sectors like power and transport can have a significant bullish effect on price expectations. These factors, together with the inevitable adjustments in prices demanded by an era of rising energy costs bring out the growing importance of structural factors generating inflationary pressures

Mobilisation of Resources

Fiscal Policy.—The scheme of financing the Plan, has been so designed as to be essentially non-inflationary in character. It calls for additional resource mobilisation of Rs. 21,302 crores by the Central and State Governments and their enterprises while deficit financing is proposed to be restricted to Rs. 5,000 crores.

As a result of progressive increases in tax rates, taxation expressed as a percentage of the country's national income now stands at 20 per cent. There is thus only a limited scope for raising additional resources through taxation. In the field of direct taxes, the possibilities of raising additional resources through income tax, corporation tax and wealth tax are somewhat limited. There is need to check tax evasion through a strengthening of the administrative machinery for tax collection, plugging the loopholes in tax laws and also through an imaginative adjustment of tax policy so as to reduce the incentive as well as scope for such evasion.

Direct taxes on agriculture at present constitute less than 1 per cent of the total agricultural income. It is, therefore, necessary to consider measures for raising additional resources from the agricultural sector and introducing a measure of progressivity in agricultural taxation. Care should however, be taken to ensure that this does not in any way affect the incentives to increase production and productivity.

In the case of Central Government's industrial and commercial enterprises, which accounted for an investment of over Rs. 15,600 crores at the end of March, 1979 the projections made for the Plan period on the basis of 1979-80 pricing policies imply a rate of return on capital employed of about 8 per cent. This should be raised to at least 10 per cent by the end of the Plan period. For this purpose, it would be necessary to improve management, increase capacity utilisation, reduce inventories and adopt appropriate pricing policies. The Railways and Posts and Telegraphs are also expected to raise substantial additional resources.

A welcome feature of the Sixth Plan is that it combines the pursuit of high growth rate with direct attack on poverty, unemployment and social and economic inequality.

In the States, the Electricity Boards are incurring huge losses. In the case of irrigation, the gross receipts are not sufficient to cover even the working expenses. Most of the State Road Transport Corporations are also making losses. It would be necessary for these undertakings to improve their financial performance through a revision of tariffs, water charges and taxes and other suitable measures.

Another area which offers scope for contribution to the Plan resources is reduction of subsidies by both the Centre and the States.

Severe restraints will have to be imposed on the growth of non-Plan and unproductive expenditure. In particular, there is no basis for the assumption that every item of non-Plan expenditure should automatically register growth at a certain minimum rate every year.

The possibilities of mobilising local resources for local use need to be fully explored. Block level committees and village panchayats could be given powers to raise specified resources, including land revenue, for development on local development schemes.

It would be necessary to adopt further measures—fiscal, monetary and others—to increase savings.

Monetary and Credit Policies.—Monetary and credit policies, while aiding the process of economic and social development in line with the priorities of the Plan, have to be so designed as to help maintain a balance between the aggregate demand and supply of goods and services. For this purpose, it would be necessary to ensure that the growth of money supply over the Plan period bears a reasonable relationship with the increase in national income. Proper planning in regard to the deployment of monetary and credit resources is, of utmost importance.

It has been decided to increase the proportion of advances to be priority sectors, comprising agriculture, small-scale industry, retail trade and small business, professional and self-employed persons etc. from 33 1/3 per cent of total bank advances in 1979-80 to 40 per cent by 1985. Further, out of the total advances to the priority sectors, at least 40 per cent will be extended to the agricultural sector. To ensure a larger flow of funds to the weaker sections, separate targets are to be fixed for them within the priority sector lending.

The level and pattern of interest rates will need to be kept under constant review in the light of the evolving economic trends. There is evidence to suggest that savings in the form of deposits with financial institutions and certain other types of financial assets are responsive to changes in the rates of interest.

Reform of agricultural taxation, so that big farmers earning high income pay their due shares in taxes, is long over due.

Incomes Policy.—The existence of wide disparities in incomes and living standards inevitably creates an atmosphere in which it is exteremly difficult to secure discipline and dedicated effort in major areas of economic activity. An incomes policy as such has to derive its rationale from the objectives of the Plan. It has to aim at reducing the existing disparities in order to bring about a more rational and equitable pattern of income distribution. Besides, it must help in stabilising prices. In fact, the success of the incomes policy itself is better assured under conditions of price stability.

In a country where nearly half of the population lives below the poverty line, the most important task of the incomes policy has to be to increase the income levels of the poorer and weaker sections. At the same time it is essential to exercise some control on high incomes as well as on non-functional incomes. It is, necessary to enforce the Minimum Wages Act and to undertake periodical revision of the minimum wages notified under the Act. The real solution to the problem, however, lies in increasing substantially the employment opportunities and bringing about a better balance between the demand for and supply of labour. Measures to impart skills and promote diversification of occupations could contribute further to an improvement in wages.

There is need for bringing about a greater rationalisation of the wage structure and linking of wages at least in some measure to labour productivity. This can be done only with the full and willing cooperation of workers and their representatives and the success of any such attempt will depend a great deal on the pursuit of policies conducive to reduce the disparities in income and consumption.

Pricing Policy.—In view of the increase in demand on account of the increase in population as well as the growth of incomes, the durable solution to the problem of maintaining a proper micro-balance between demand and supply would essentially lie in increasing the production and availability of goods and services in relation to the growing demand. Maintenance of relative stability and reduction in seasonal fluctuations in the prices of agricultural commodities is of vital importance. Buffer stocks for the articles of common consumption will need to be created as the situation permits and marginally with the help of imports, to the extent feasible. It is hardly necessary to emphasise that the farmers need to be provided remunerative prices so as to ensure that they have adequate incentive to produce more and improve productivity.

In the interest of overall price stability, it will also be necessary to control or regulate the prices of certain essential industrial products, particularly basic consumer goods and important industrial or agricultural inputs. Care has, however, to be taken to limit price control and regulation measures, or the system of administered prices, to as few commodities as possible.

In the interest of making public enterprises viable, enabling them to play their assigned role and raising additional resources for development, there is need for rationalising their pricing policies in a phased manner. While doing so, due weight will also have to be given to considerations of social costs and benefits.

Public distribution system

..From the point of view of maintaining stable price conditions, an efficient management of the supplies of essential consumer goods is of crucial importance. Public distribution will have to play a major role in ensuring supplies of essential consumer goods of mass consumption to people at reasonable prices, particularly to the weaker sections of the community. The public distribution system will have to be so developed that it remains hereafter a stable and permanent feature of our strategy to control prices, reduce fluctuations in them and achieve an equitable distribution of essential consumer goods. It is proposed in the Sixth Plan to follow an integrated approach and to pay attention, apart from production and procurement, to transportation and proper storage of the commodities covered by the public distribution system. Special attention will need to be given to rural areas, as the system is relatively less developed in such areas. For the successful operation of the public distribution system, it would be necessary to revamp and strengthen the existing arrangements in the States.

The total number of price shops including private outlets in the country is proposed to be increased from 2.5 lakhs at present to 3.5 lakhs by the end of the Sixth Plan. It is necessary to provide a measure of protection to consumers in relation to quantity, quality and prices of at least essential consumer goods. The basic legal framework for providing such protection already exists. However, it needs to be reviewed and strengthened.

Foreign Trade Policies

A major task facing the country is to reduce its dependence on imported energy and generally to promote exports and invisible earnings in an effort to secure self-reliance. It should be obvious but often is not, that self-reliance does not mean self-sufficiency in all sectors of the economy. So long as the country is able to pay its way, it cannot be said to be dependent on others. It seems clear that over the next five years or so the balance of payments prospects facing the country are such that it can ill-afford not to give high priority to the promotion of exports and other foreign exchange earning activities. To a considerable extent, the task of achieving the growth of 9 to 10 per cent a year in export volume will be greatly eased if inflation is brought under control. In developing a general strategy of export growth, it is necessary to identify specific areas of relevance for exports to OPEC and give them a priority treatment. It would appear that maximum attention will need to be given in the coming years to :

(a) Removing the disadvantages which exports suffer because of the restrictions on imports;

(b) Removing obstacles to the expansion of capacity for exports;

(c) Streamlining the existing case compensation and other schemes intended to remove the disadvantages suffered by exports on account of taxation and physical controls operating in the economy.

(d) Ensuring that Government intervention in the foreign trade policies is such as not to discriminate against exports and production for export ; there is a case for making exports marginally more profitable than import substitution, in view of the need to diversify export trade which involves capturing new markets and retaining them; and

(e) Maintaining adequate links with technological developments abroad so that our export capability is not hurt by outdated technology.

Agricultural Growth

A clear strategy will have to be evolved to ensure that girculture receives a very high priority in all policies and programmes. The postulated increase in output is expected to result from increases in area under irrigation and high yielding varieties, a substantial increase in the consumption of chemical fertilisers and adoption of a system approach for consolidating the gains already achieved and extending the benefits of new technology to all categories of farmers and all regions.

Along with the growth of production, it is proposed to remedy the imbalance in the relative growth of different crops, in particular by acceleration of the growth rate in the output of pulses and oilseeds. The structure of production will be diversified for enabling a sustained rise in output and incomes and for helping the export efforts.

All available instruments of policy will have to be geared to the promotion of the proposed increase in agricultural production. In particular, it will be necessary to ensure that crop production is remunerative to the farmer through adoption of appropriate policies concerning pricing of agricultural inputs and outputs, arrangements for supply and distribution of inputs, adequacy and timeliness of credit as well as marketing support, an intensification of research, education and extension. These are spelt out in greater detail in the Chapter of Agriculture.

An important task of policy is to ensure that the gains of the technology and public supported programmes accrue increasingly to the small and marginal farmers and are reflected in the adequacy of remuneration for agricultural labour. Provision of inputs and credit will help, but it is necessary, in order to induce durable investments in land, to give the tiller a stake in land. Thus the importance of effective land reforms can hardly be over-emphasised. Even a limited redistribution of land can make a significant contribution to the generation of productive employment opportunities in the rural areas.

The most pressing problem at the moment is the mobilisation of resources not only to finance public sector outlay but also the proposed investment in the private sector.

Keeping in view the perspective of the next fifteen to twenty years, it is proposed to organise a National Water Development Corporation for the preparation of detailed blueprints for inter-basin transfers of water. Measures will also be taken for the conjuctive use of surface and ground water resources. Further, it is important to evolve a suitable policy frame-work for dealing with inter-State disputes in sharing river waters.

It is clear by now that the basic structure and objectives of policies governing Government's intenvention in industry have stood the test of time. The commanding heights of the economy must continue to remain with the public sector. At the same time a greater emphasis is suggested in the direction of competitive ability, reduced cost and greater mobility and flexibility in the development of investible resources available in the private sector in accordance with broad national priorities. In order to secure these, it would be necessary, apart from general fiscal and monetary measures, to use the instruments and licensing policy and policies governing the regulation of capital markets, including the operations of term-lending institutions. Measures taken recently have already shown the flexibility with which industrial licensing policies are being operated.

On the one hand it is necessary to adopt flexible policies to revive investor interest in the capital market. On the other hand, the role of term-lending institutions in promoting Plan objectives will need to be more carefully defined. There is clear need for improving the investment climate and broadening the new issue market so as to reduce the dependence of private industry on public financial institutions. The activities of the term-lending institutions themselves, on the other hand need to be directed more than in the past to programmes germane to the implementation of the Plan targets.

An important objective of the Plan is to bring about a progressive reduction in regional inequalities in the pace of development and in the diffusion of technological benefits. It should be generally accepted that the fulfilment of the objective requires upgrading the development process in the backward regions rather than curtailing the growth of these regions which have acquired a certain momentum. Thus the measures to be pursued for reduction of regional inequalities have to be consistent with the general objective of achieving a 5 per cent growth rate in the economy as a whole.

Apart from a second financial base, the success of the plan would depend upon the evolution of a sound policy framework that ensures accelerated growth of the economy with maintenance of relative price stability.

The special programmes for backward regions have to be dovetailed with the overall development plan in order to make them cost effective. Thus, mechanisms of area planning have been adopted to provide an integrated approach to the problem of regional inequalities, and the sub-plan approach has been promoted so that the area plans are fully integrated with the national development plan. The National Committee on Development of Backward Areas (NCDBA) has recently recommended that the following features should form a part of financial arrangements for the development of backward areas.

(i) Sub-Plan Approach : The concept of a sub-plan has been developed in the integrated Tribal Development Programme. There should be a 'Sub-Plan' for the development of backward areas both at the State and Central levels. In the Plan of every development department there are programmes which are divisible. In the Sub-Plan approach, weighted allocation is proposed to be given to the backward area from the divisible part of the plan of the development department.

(ii) Project fund for local planning and special additive funds : Even though the divisible part of the State Plan is allocated to the projects sheer inertia of on-going programmes will leave very little scope to the local planning group to adjust the funding to local requirements of an integrated development approach at the local level. Special steps will, therefore, have to be taken to force gradually a discretionary allocation to the local planning and implementation group to enable them to bring in local planning of greater magnitude gradually. In addition, as development of backward areas has to be expected, a special allocation of Rs. 5 lakhs per year for each block in the project area should be available as a special additive for the plan period.

(iii) Financial discipline : In view of the tendency to divert funds intended for backward and difficult areas to more forward areas and easier programmes, financial discipline will have to be imposed to ensure that the funds included in the Sub-Plan for the development of backward areas and allocated to the projects in the backward area by various departments and the additives are spent properly within the year in that project area.

The recommendations of the NCDBA on special areas development programmes will be considered by the Government and the required changes in scope, coverage and organisational modalities will be introduced during the Sixth Plan period.

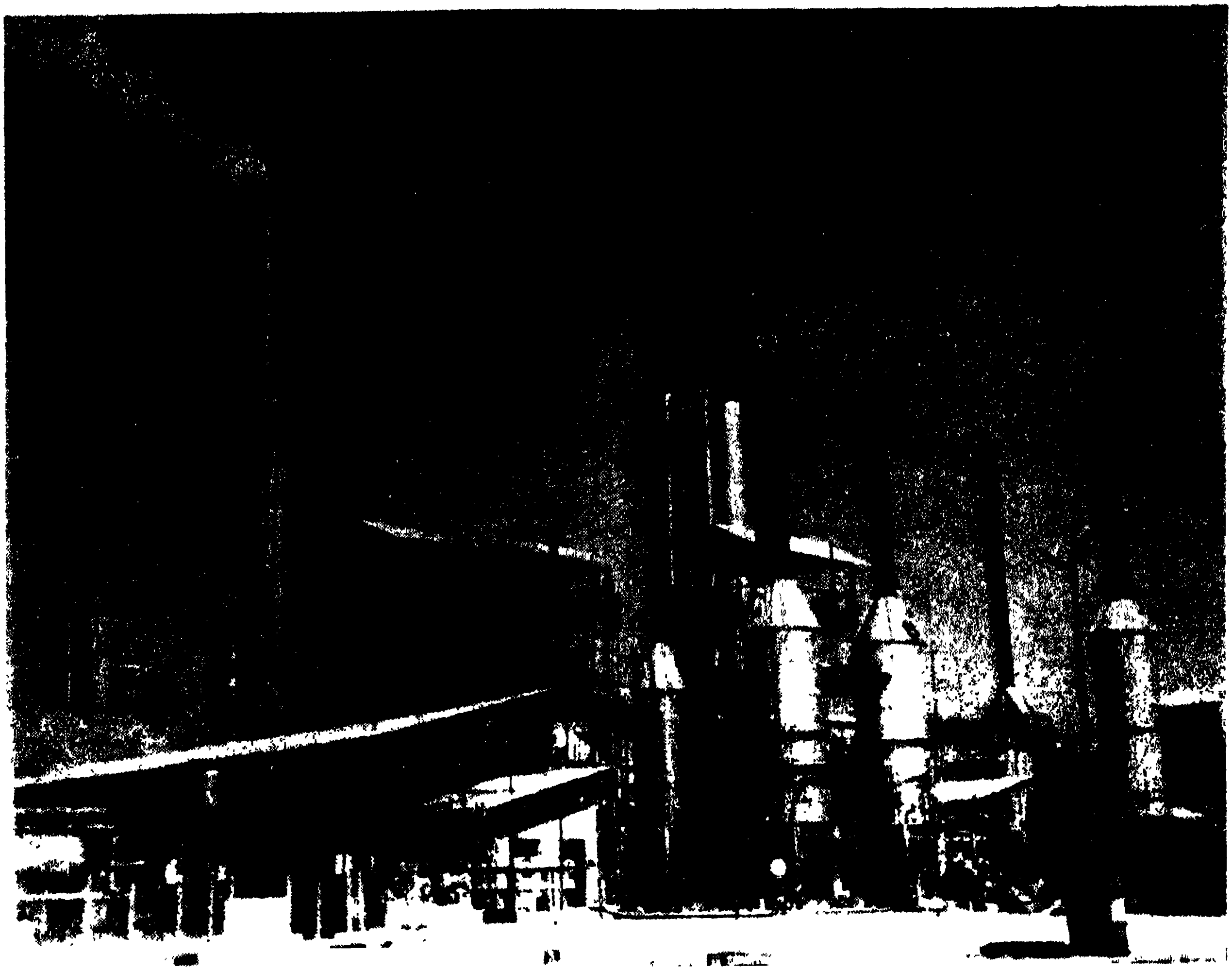
It will also be necessary to strengthen the arrangements for area planning so as to enable financial institutions, commercial banks and cooperatives to augment substantially their lending in the backward regions in agriculture and allied activities as well as for village and small industries. ☐

Tourism spins Foreign Exchange

WITH Rs. 482 crore foreign exchange earnings during 1980, tourism has become the fourth largest foreign exchange earner in the country. During 1979, Tourism fetched Rs. 384 crores worth of foreign exchange. About 8,00,150 foreign tourists arrived in India during 1980 against 7,64,781 in 1979. Average length of stay per tourist in the country is over 25 days.

Accommodation available in the country for tourists at present is over 22,000 rooms in 354 hotels. During 1980 itself, 35 hotels with 2830 rooms were added to the approved list of the Department of Tourism. Approval was given during the year at the planning stage for 42 hotel projects which, when completed, will add another 2951 rooms.

Indian Airlines has a fleet of eight Airbuses and 18 Boeing 737s to take tourists from one tourist centre to another. During 1980 the Airlines acquired two Airbuses and four Boeing 737s to augment its capacity. Another three Boeing 737s will be acquired during the current year. ☐



Oil refining capacity in the country has risen five times during the past two decades to roughly 31.8 million tonnes.

Oil in the Sixth Plan

Satish Jha*

WITH CRUDE OIL and petroleum product imports already accounting for over 90 per cent of exports the sixth five year plan has charted out an ambitous programme of increasing domestic crude production and addition of refining capacities. Still the draft sixth plan foresees an increasing gap between demand and supply of petroleum products. The draft also recognises that faced with the inevitability of supply lagging behind demand and the resource constraints, both physical and monetary, it may have to resort to the policy of demand management. Despite these the import volume of crude and products during the current plan period is likely to be looking up, increasing from roughly 17 million tonnes at present to 23.5 million tonnes towards the end of the plan even under most optimistic situations.

In fact, at present, the per capita oil consumption in India is only about 1 per cent of American per capita oil consumption and the need to industrialise will further boost the demand for oil due to rigid and limited technological alternatives. Rising demand for oil products in the country since 1975-76 is a proof of the same. On the other hand, in marked contrast to the developing countries oil consumption in the developed countries as a group and particularly of the members of the International Energy Agency in 1980 slided down by 7.5 per cent over the previous year. This has been mainly a result of almost trebling of the OPEC oil prices during the past two years. Thus, whereas the developed countries have already reached a plateau in oil consumption thanks mainly to the price hike by crude producers, demand for oil is likely to rise in most developing countries for years to come.

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In India there has been a steady rise in demand for petroleum products since the beginning of the plan era and the rise was more than four fold in a span of 20 years from 1953 to 1973. In 1953 total oil products consumption was only 5.2 million tonnes and rose to 23.7 million tonnes in 1973. The price hike by the OPEC countries could check this growth barely for a year and since then consumption has risen by a little over six million tonnes. According to the Planning Commission projections it is likely to grow by 50 per cent during the plan period.

Unfortunately indigenous production has not kept pace with the rise in demand though it has been substantial over the last two decades. From a paltry 0.45 million tonnes in 1960, Indian oil fields pumped out 11.77 million tonnes in 1979-80. The current plan envisages the domestic crude production to rise to 21.6 million tonnes by 1984-85. But according to the Planning Commission estimates even this will leave an uncovered gap of 23.4 million tonnes which obviously will have to be imported.

The refining capacity in the country has also been rising at an impressive rate and has risen over five times during the past two decades to roughly 31.8 million tonnes (nominal). By the end of the current plan it is anticipated to rise to about 41 million tonnes. Even this will fall short of our product requirements of 45.5 million tonnes by that time. This would imply a heavier burden on imports due to the uncovered gap being imported in product form.

The Sixth Five Year Plan has charted out an ambitious programme for increasing domestic crude production and stepping up refining capacity. But it still presents wide gap between demand and supply of petroleum products and limits at the possibility of resorting to a policy of demand management.

Thus while the demand is rising we are unable to produce the requirements. The reasons behind it are not for to seek one : our initially recoverable oil resources are very small and our skill to explore new fields limited. Secondly the rapid growth in oil consumption itself has been a result of our development strategy which did not consider the implications of heavy dependence on an imported input resulting in liberal imports of crude oil and oil products. This in turn has made a large segment of our infrastructure oil intensive. However, some foresight was evident in installation of refineries to save on import cash and also in making an effort in the direction of increasing domestic production. And yet though our initially recoverable oil reserves have improved from 172 million tonnes in the mid-sixties to 478 million tonnes at present. the balance of crude reserves is put at only 360 million tonnes, the rest accounting for depletion till date. At the present rate of growth in demand this may, at best. last for a decade only. This adds to the uncertainly in oil situation in the country.

TABLE I

Target of Domestic Crude Production in the Sixth Plan (1980-81 to 1984-85)

(In million tonnes)

	1980-81	1981-82	1982-83	1983-84	1984-85
1	2	3	4	5	6
Western Region					
Ankaleshwar	2.0	1.8	1.7	1.6	1.4
North Gujarat	1.4	1.4	1.4	1.4	1.4
	3.4	3.2	3.1	3.0	2.8
Eastern Region					
O.N.G.C.	1.7	2.1	2.6	2.8	3.0
Oil India	2.8	3.2	3.0	2.8	2.0
	4.5	5.3	5.6	5.6	5.6
On land (Total)	7.9	8.5	8.7	8.6	8.4
Off-Shore	5.2	8.4	11.8	12.7	13.2
TOTAL .	13.1	16.9	20.5	21.3	21.6

Substituting Oil Consumption

A decade is, however, too short a period to evolve effective alternatives to substitute oil consumption. In the west attempts are being made in this direction but without much success from the point of view of economic viability in the short run. Our attempts towards searching for alternatives are too limited and scattered. Even the draft Sixth Plan which has been prepared in the face of mounting oil import bill (an estimated Rs. 6,000 crores for 1980-81) and often even uncertainty of smooth supply has failed to take a pragmatic approach to the problem. Nearest it came to approaching the problem was in talking in terms of demand management. Besides the chapter on Energy of the draft Plan does not seem to recognise the relative insubstitutability of various forms of energy at least in the short run when the technology is given. As a result there is no mention of a programme for alternative in oil use. Various alternatives mentioned include wind energy, solar energy, geothermal energy and so on, without looking at their potential and commercial viability in this country. Some of the major alternative sources like fuel from wood, production of oil and diesel from coal and hydrogen do not even find a mention in the draft Five Year Plan. But in respect of alternatives in energy in general the approach of the Sixth Plan is to implement energy, forestry and biogas programmes where technology has already been standardised, to test the commercial viability of programmes with the potential viability in five to seven years and to intensify R&D in other areas.

But even here lack of a wider perspective is clear from the fact that while the Plan has set the target of bringing about 13 lakh hectares under plantation there is no mention of extraction of alcohol from fuel wood. In essence the programme seems to be geared to meet the needs of the rural areas, which indeed is welcome, but totally ignores the possibility of substitution of petroleum products from forest resources. What is worse, the total allocation for the entire scheme of fuel and farm forestry is only Rs. 50 crores during the plan period. This works out to an unrealistically

TABLE II
Sixth Plan Outlay : Petroleum Sector

Programmes/Projects	(Rs. crores) outlays
Exploration and Production	2873.58
ONGC—operations	2853.58
ONGC—R & D	20.00
Refining & Marketing	1426.42
I Operations	1408.89
II R&D	17.53
Indian Oil Corporation (IOC)	
(a) Refineries & Pipelines	
Continuing schemes	281.81
New Schemes	177.05
	458.86
(b) *Marketing*	
Continuing Schemes	146.20
New Schemes	89.50
	235.76
(c) *R& D*	
Continuing Schemes	1.04
New Schemes	5.85
	6.89
(d) *Indian Oil Blending Ltd* (IOBL)	
Continuing schemes	4.20
New Schemes	1.23
	5.43
Total IOC	706.94
Bharat Petroleum	
Continuing Schemes	97.26
New Schemes	50.60
	147.86
Hindustan Petroleum	
Continuing Schemes	115.47
New Schemes	93.33
	208.80
Madras Refineries Ltd.	69.82
Cochin Refineries Ltd.	62.14
Bongaigaon Refineries Ltd.	14.59
Engineers India Ltd.	7.20
Indian Institute of Petroleum	7.00
Department of Petroleum	178.55
GRAND TOTAL	4300.00

low allocation of less than Rs. 150 per acre of plantation. Similarly for the programme of scientific and technological development relating to the new energy resources the total allocation comes to around Rs. 50 crores. This is despite the formation of a high powered Alternative Energy Commission by the Government.

This cavalier attitude towards alternatives also comes out loud and clear in the planned allocation on research and development in the field of exploration and production also which has been targetted at only Rs. 20 crores. It is worth noting that against this the allocation for R&D in refining and marketing is Rs. 17.5 crores. Including R&D expenses to be incurred by the Indian Oil Corporation the total expenses under this head came to only one per cent of the total plan allocation for petroleum sector, which has been targetted to be Rs. 4300 crores.

Regarding indigenous production of crude oil, plan document shows a heavy emphasis on off-shore possibilities. During next four years (one year of the plan period having been lost already) while the total indigenous crude production is to rise by 8.5 million tonnes, the contribution of on land oilfields is to rise by only 0.5 million tonnes, the rest of the incremental output coming from off-shore areas. This has been planned because some of the onshore oilfields are showing the signs of drying up. The production from Nahorkatiya and Moran oilfields of Oil India has been declining. Therefore, to feed the refineries in the eastern sector it is planned to develop Joagain field, balance to be pumped out by the ONGC fields in the region. This would require additional investment to keep the output in the region at the present level.

The production from Ankaleshwar field in the western region is expected to decline from the present two million tonnes annually to only 1.4 million tonnes towards the end of the plan while the production from north Gujarat field is to be maintained at the current level.

Off-Shore Oilfields

Nearly all the rest of the targetted domestic crude is to be pumped out of the Bombay High off-shore field where, with the completion of Phase IV, which envisages installation of ten well platforms, the production potential is hoped to rise to 12 million tonnes per annum by the year 1982-83. So far phases I, II and III-A have already been implemented bringing the potential production capacity to five million tonnes per annum. With the completion of phase III-B another potential capacity of two tonnes annually was to be added by the end of December, 1980, the balance is expected to be pumped out of the North and South Bassein structures.

However, even at this low rate of depletion of oil reserves the life span of balance of initially renewable crude is less than 20 years while of the depletion rate (rate of extraction to balance of initially recoverable reserves) is raised to the level of consumption, the life span comes down to less than a decade.

Thus even the Sixth Plan, despite its ambitious exploration and production plan targets, does not come up with a long term-strategy for coming to grips with the oil crisis. And in this respect the economy seems to be poised for increasing its petroleum imports bill at an exponential rate during the planning period. ☐

An Overview of Savings Behaviour in India

G. Karunakaran Pillai*

ONE MAJOR POLICY issue of economic development of a developing country is to mobilise adequate savings to finance the required investment. Since the advent of planning, there has been a modest but steady upward trend in the rate of domestic savings in India. When compared to other countries, India had one of the lowest rates of domestic savings during 1951-52. By the mid-sixties, she had advanced into the middle-range among the less developed countries. In an U.N.C.T.A.D. study, out of fifty eight countries examined in relation to the average savings/GDP ratio India ranked twenty seventh during 1960—65 and thirty first during 1965—70.

The present savings GDP ratio in India may well compare favourably with the ratio which is achieved only in middle income and high income industrialised countries. The most recent trends pertaining to the estimates of savings and investment ratios show that the savings ratio rose at a faster rate than the capital formation ratio, thus resulting in an excess of domestic savings over investment.

This appears to be rather curious because one does not see economic activity of any comparable nature in India. This phenomenon has no parallel in the history of economic development of the less developed countries. This calls for a detailed examination of the domestic savings behaviour in India.

Structure and growth of domestic savings

Net domestic savings originate from three distinct sectors. These are : (i) Household sector comprising individuals, non-government and non-corporate enterprises and non-profit making organisations like trusts, educational institutions and charitable foundations; (ii) Private corporate sector consisting of non-government, non-financial public and private limited companies all scheduled and non-scheduled commercial banks (other than nationalised banks), general insurance companies other financial companies and Co-operative banks and Societies; (iii) Government Sector including central and state governments, local bodies, statutory corporations, Departmental Commercial undertakings and Government registered companies. The contribution of each of the three sectors, both in absolute and relative terms, for selected years is presented in table 1.

The table reveals interesting features about savings behaviour over time. Savings of the household sector accounted for 79 per cent of the total net domestice savings during 1950-51. The corresponding shares of the private corporate sector and the public sector were 4.4 per cent and 16.5 per cent respectively. The savings income ratio stood at 7 : 69 during the same year. In 1955-56, the relative share of the household sector increased to 87.1 per cent and the share of the private corporate sector and the public sector dipped to 3.4 per cent and 9.5 per cent respectively. However, the situation was different during the third plan period. In 1961-62, the share of the household sector to total net domestic saving declined to 68.06 per cent and the share of the private corporate sector and the government sector registered an increase of 8.61 per cent and 23.33 per cent respectively. The volume of household savings recorded a remarkable improvement since 1965-66. In 1969-70 and 1972-73 the share of the household sector in the overall net domestic saving stood at 80 per cent. But during 1975-76 there had been a decline in the share of the household saving to 73 per cent. Notwithstanding these significant fluctuations in annual savings the household sector claimed the major part of the aggregate savings over the period.

The present savings/GDP ratio in India may well compare favourably with the ratio achieved only in the middle income and high income industrialised countries.

The private corporate sector presents an unhappy picture of the savings behaviour. As indicated earlier, the proportion of net domestic savings contributed by the private corporate sector has fallen from 8.61 per cent in 1960-61 to 3.72 per cent in 1972-73, the worst of it being recorded during the annual plan periods of 1966—69. There was a stagnation of the contribution of this sector. The savings of the corporate sector consist of the retained earnings and the decisions regarding retained profits depends upon the dividend policy. The unstable behaviour of the savings during different years is indicated by the priority given to a regular and stable rate of dividend payments. Another probable explanation of the low rate of savings, is the steeply progressive direct taxation.

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Table I

Rlative share of different sectors in the total Domestic Savings in selected years

(Rs. in crores)

Year	Net Household savings	Net private corporate savings	Net governments savings	Net domestic savings	Net domestic savings as a percent of N.D.P.
1	2	3	4	5	6
1950-51 . .	579.9(79.1)	32.2(4.4)	119.3(16.5)	743.1	7.69
1955-56 . .	996.1(87.1)	38 7(3.4)	109.3(9.5)	1144.1	11.45
1960-61 . .	901(68.06)	114(8.61)	309.(23.33)	1324	9.9
1965-66 . .	1871 (72.99)	101(3 93)	592(23.08)	2464	12.3
1969-70 . .	3256(80 48)	147(3.62)	645(15.90)	4048	12.6
1972-73 . .	4135(80.45)	191(3.72)	814(15.83)	5140	12 90
1975-76 . .	7319(73.1)	520(5.2)	2174(21.7)	10013	14.7

(Figures in parentheses indicate percentage shares of the sector in total).

Government savings have also fluctuated violently over the period. The magnitude of taxation increased enormously, as is evident from the rise in the ratio of tax revenue to GNP from 6.9 per cent in 1950-51 to 18.4 per cent in 1977-78, and additional mobilisation being quite massive during the third, fourth and fifth plan periods. However, this massive effort did not lead to an increase in the share of public savings, presumably because a major portion of the increased taxation has gone to meet the growing government consumption expenditure owing to the substantial increase in the emoluments of government employees and other rise in establishment costs, increased defence expenditure, expenditure on relief and natural calamities, food subsidies, etc. Even though there was progressively expanding Investment in the public sector through planning, the surpluses of the public sector enterprises have been unsatisfactory owing to the low operational efficiency and irrational price policies.

One would naturally expect that in a poor country the overall rate of savings rises steadily, it would follow a decline in the share of the household sector in favour of the other two sectors. However, such a shift is not evident to any significant extent in India. The increase in savings rate throughout the period was due to the increase in household savings. The inherent motives of the households to augment savings has always been strong in India, compared to any developing economy.

Rural-Urban Household Savings Disparity

As the rural population is five times the size of urban population one might expect a priori that rural household would account for a larger share of savings. However, it is the urban households which account for approximately three-and-a half times the rural household savings. Estimates of marginal propensity to save show that the urban households (0.24) have a greater marginal propensity to save than the rural households (0.14).

Composition of Household Savings

The savings of the household sector comprise savings in the form of net financial assets and physical assets. Financial assets constitute a major portion of the saving. Savings in the form of financial assets consist of currency, bank deposits, insurance policies, provident funds, claim on government, corporate and co-operative shares and securities. Savings in the form of physical assets include farm investments, residential construction and non-corporate business investment in plan and equipment. Savings in the form of financial assets constituted 57 per cent of the household during 1968-69. During 1977-78 the share of financial assets was 73 per cent. With the development of the economy there was a development of the capital market and the opportunities of savings in financial assets. The increase in financial assets over physical assets depicts larger flow of funds in productive channels.

The urban households have greater access to the means for savings in the form of financial assets than the rural households. The N.C.A.E.R. survey of the 1967-68 reveals that 70 per cent of the savings of the urban households took the form of financial assets. The corresponding proportion of the rural households was only 14.1 per cent. Interestingly enough, among the households with annual disposable income of less than Rs. 3,000, savings in the form of Provident funds and life insurance was substantial. For these households contribution to provident funds was a net addition to their total savings. However, this was not true for households blessed with higher levels of disposable income. Obviously among all households the savings ratio was higher for those who save in contractual form such as provident funds and insurance.

The trends in savings during 1978-79 as revealed by the quick estimates released by the C.S.O. indicate that the ratio of gross savings to GDP at market prices steadily rose from 20.6 per cent in 1975-76 to 22.9 per cent in 1977-78 and to 23.9 per cent in 1978-79. The gross investment to GDP rose from 20.5 per cent in 1975-76 to 22.3 per cent in 1977-78 to 24.1 per cent in 1978-79. Considering the high level of savings achieved in 1978-79 the country has achieved a high rate of savings despite its low per capita income.

The foregoing discussion indicated the predominance of household savings in the total net domestic savings of the country. Any policy for raising the saving rate of economy calls for improving the propensity of the households to save. As 80 per cent of the households belong to the lower income groups and 20 per cent to the middle income group, a more equitable distribution of additional income generated would reduce dissaving of the former and increase the savings of the latter. Incentive measures like offering high reward for saving such as increase in the rate of interest on deposits and provision for tax exemption to saving will help in increasing financial savings. As contractual savings provident fund and life insurance—are the major components of financial savings, these facilities should be extended so that more households can take advantage of this form of saving. ☐

Modern Production and Environmental Protection

Boris Laskorin

NATURE leaves behind no wastes and brings about no environmental pollution. Therefore, the principal task facing mankind today is to learn to exploit biosphere with strict observance of ecological expediency. Any new technology designed must be assessed, first of all, from the quantity of wastes, it yields and if it can disturb the ecology.

It is necessary to design complex production which will utilise raw materials to the maximum and the wastes of which can be processed into useful goods.

Today, technological systems, which make possible complex utilisation of raw materials, are being developed practically for each industrial branch. Nevertheless, there are still industrial plants built with no account of ecological requirements asked of modern production. These enterprises make use of specially designed dust and gas arresters, technological facilities with water recycling systems and purification installations, which help lessen the harmful effects of industry on the environment.

In the Soviet Union there are many factories which work without wastes. Asbofabrika No. 6, the biggest asbestos fibre producer, is running the world's most powerful air purification system with a capacity of nine million cubic metres of air an hour. It arrests upto 100 tons of harmful asbestos dust an hour. After purification the air is guided back into the plant. The factory is operating the air recycling system.

A basically new method of nitrogen acid production has made it possible to get rid of the "fox tails", toxic reddish brown clouds of nitrogen oxide which can be often seen above the funnels of modern nitrogen acid producing factories.

The Institute of Chemical Physics of the USSR Academy of Sciences developed a new method of sulphuric acid production which rules out the possibility of damaging biosphere and utilises all gas wastes. Sulphur dioxide, which was previously discharged into the atmosphere, is now being used in non-ferrous metallurgy for sulphuric acid production. This method yields annually in about 25 million roubles in savings.

The Soviet scientists are developing new progressive low water waste technologies. Sewage-free technology is being utilised at the Almalyksky and Kedainsky chemical plants, the Chimkent Fosfor production association and some other industrial businesses. At the new oil refineries in Ryazan, Perm, Novoyaroslavsk, Novgorod and some other towns the use of water recycling systems ensured a saving of fresh water to the tune of 92 per cent. The Mozhaisk, Achinsk and Lisichansk oil refineries make use of the technological systems with waste water recycling.

(Soviet Feature)

PLANNED FAMILY
FOR
PLANNED PROSPERITY

Engineering Industry in Seventies

Dr. Ziauddin Khalroowalla*

IT would be no exaggeration to say that the Indian engineering industry has been the prime mover behind the country's industrial resurgence since independence. The development of a range of engineering works, initially for repairing railway locomotives and other railway stock and the setting up of steel plants in Burnpur and Jamshedpur more or less prepared edifice for the country's entry into the modern industrial era. Now we have a strong industrial base with heavy machines, heavy tools, iron and steel alloys, construction materials, oil refineries, petrochemical complexes. More and more units are being set up for manufacturing various sophisticated items. Locomotives, wagons, trucks, ships, aeroplanes, tractors and agricultural implements, pesticide equipment and communication apparatus like teleprinters and T.V. Sets, are being made indigenously.

Industry's Potential

In regard to the industrial potential we have to answer a number of questions. Where does the industry stand today ? What is its full potential ? What are the contraints in the way of exploiting these potentials ? Over the years the engineering Industry has scaled new heights. The country can now take legitimate pride in its complex of gigantic undertakings manufacturing item ranging from pins and hand-tools to plant equipment and heavy engineering products. The available statistics on the industry show its potentiality. Its productive capital has increased from Rs. 33,298 million in 1970 to Rs. 75,549 million in 1976-77. It is noteworthy that engineering industry is capital intensive rather than labour-intensive. Over the period, the share of employment in engineering industry has declined from 31 per cent in 1970 to 27 per cent in 1976-77.

The value of output of engineering industry has increased from Rs. 34,736 million in 1970-71 to Rs. 105,259 million in 1976-77, representing an overall increase of 203 per cent. The rate of increase in value of output is much higher than the rate of increase in productive capital investments. This is because the expansion of engineering industry is both fast and extensive, horizontal and vertical and export and domestic market oriented.

Export performance

On the export front, the industry's contribution is commendable. The total value of engineering exports has increased from Rs. 125 crore in 1971-72 to Rs. 685 crore in 1978-79, showing an over all increase of 448 per cent. The EEPC is hopeful to achieve the target of Rs. 900 crore set for 1980-81. The following table presents the annual growth of total exports as well as engineering exports during 1971-72 to 1978-79.

Year	Total Exports (in crores Rs.)	Engineering Exports (in crore Rs.)
1971-72	1682	125
1972-73	1971	141
1973-74	2523	193
1974-75	3329	349
1975-76	4036	408
1976-77	5143	552
1977-78	5375	624
1978-79	5618	685

From the above table it can be seen that the export earnings from all items went up by 234 per cent during 1971-72 to 1978-79 while those from engineering goods increased by 448 per cent during the same period. It is interesting to note that the rate of increase in engineering exports is much higher than the rate of increase in total export earnings. All these facts reveal that engineering industry has bright prospects in the world market.

Impediments and Guidelines

One of the main constraints to the growth of engineering industry is the hike in industrial costs because of increase in the cost of raw materials, components, spare parts, fuel and wages. This sharp escalation in industrial cost over the years has resulted in lower rate of return for the engineering industry. The other constraints are the time-consuming administrative procedures, shortage of wagons to ensure expeditious supplies of raw materials and despatches of finished products, power cuts, industrial unrest and woeful lack of productivity conciousness both at management and employee levels

These impediments to the development of this vital industry call for bold and imaginative remedial measures. Essentially, the efforts to streamline the industry must focus on the fullest utilisation of its existing capacity. The reduction in excise duties on steel and other raw materials, and the offer of higher fiscal incentives to the corporate sector are some of the steps that brook no delay. □

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Labour absorption in cultivation and increase in food production can be achieved by bringing more arable land under the plough.

Increas Employ In Agricultur

Vishnu K

IN INDIA, we have surplus labour. At present there are about 20 million unemployed persons. Of these 16 million are in rural areas. There is plenty of scope for increasing employment in the agriculture and allied sectors. We will have to raise the production in the farms by atleast three times to achieve the labour absorption of the level of China or Japan. The labour absorption in cultivation in countries like Japan, China and Taiwan is more than 500 mandays per hectare per year whereas in India, it is less than 150 mandays. Thus, there is enough scope for increasing labour absorption in agriculture in our country, if we adopt Japanese or Chinese type cultivation. In this article, an attempt has been made to identify the areas where-in additional employment opportunities in agriculture and allied sectors can be created.

Intensive Cultivation

Labour absorption (in absolute term) in cultivation *vis-a-vis* agricultural production can be increased by extensive cultivation, i.e., by bringing more arable land under cultivation. However, labour absorption per unit of land can be increased only by intensive cultivation. Intensive cultivation aims at increasing cropping intensity, bringing more land under assured irrigation, use of high yielding varieties, use of fertilisers, insecticides, pesticides and adoption of modern agricultural practices. In promoting the intensive cultivation, optimum management of land and water resources will also play vital role. Dairy development, piggery, sheep and poultry production programmes will contribute their mite in providing employment opportunities to rural workers.

During 1975-76 also about 22 million hectares (12.5 million hectares as current fallow and 9.5 million hectares other than curent fallow) were reported as fallow lands. In order to increase the net area sown and also gross cropped area, we must improve our fallow land particularly current fallows.

Land and Water Management

Unfortunately, every year we face either floods or droughts or both. These natural disasters are to a great extent man-made. The indiscriminate felling of trees in the hilly Himalayan regions and widespread deforestation elsewhere is responsible for these disasters to a considerable extent. Unless deforestation is stopped and aforestation started for maintaining the ecological balance it will be futile to spend crores of rupees on flood protection works. More than 50 per cent of the total area of 304 million hectares (1975-76), suffer from either water erosion, wind erosion or is prone to floods and salinity. In addition, there are another 10 million hectares which have assured canal irrigation but the production from this area is only a fraction of its capacity, because all the related facilities such as land levelling, field channels and drainage systems are still to be provided. These areas need immediate attention.

The tribals, who resort to shifting cultivation, are significanty responsible for deforestation. In the north-eastern parts of the country alone about 4,92,000 tribal families practise shifting cultivation on 4,53,000 hectares of area. The total area affected is about 26,94,000 hectares. These tribals should be given some land out of surplus land acquired under Land Reforms Act or Bhoodan Campaign and other necessary facilities, so that they can cultivate their own land and leave their traditional practice of shifting cultivation. In the hilly areas, wherever possible, we

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* Deputy Director, Labour Bureau, Chandigarh.

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If the productivity of our agricultural lands is increased by bringing more area under assured irrigation and supply necessary inputs, all our foodgrains can be produced from a much smaller area than the present 142 million hectares.

may encourage development of horticulture. In Himachal Pradesh and hilly areas of Uttar Pradesh there is enough scope of promoting horticulture and cultivation of fruit crops. In such areas, small-scale industries which depend on forest products for their raw materials should be encouraged. Fruit processing and paper pulp plants are worth consideration, in such areas.

Multiple-Cropping and Cropping Intensity

If we succeed in substantially increasing the productivity of our agriculture lands, by way of bringing more area under assured irrigation and by adequate supply of inputs at economic prices, it will be possible to obtain all our foodgrain requirements from a much smaller area than the area of 142 million hectares at present under cultivation. China is practising multiple-cropping over 90 per cent of her cultivated area, while we are doing so on 20 per cent only. For bringing more area under multiple-cropping or increasing the cropping intensity, we must have assured irrigation. At all-India level, the percentage of land irrigated is around 26.2. If we want to achieve the multiple cropping of the order of China, we must have at least 80 per cent of our cultivable land under assured irrigation.

In States like Haryana, Himachal Pradesh, Manipur, Punjab and Tripura the cropping intensity is already more than one being of the order of 1.5. In Kerala, Uttar Pradesh and West Bengal the cropping intensity is of the order of 1.3. The cropping intensity is the highest (1.56) in relatively less developed State Tripura followed by Himachal Pradesh (1.51) and Manipur (1.50). The overall cropping intensity of the country as a whole is around 1.1. There is enough scope for increasing the cropping intensity in the States of Tamil Nadu, Gujarat and Karnataka which are otherwise developed States. Our aim should be to achieve cropping intensity of more than 1.5 at the national level.

Cropping intensity can also be increased by reducing the duration of crops which will release the land quickly for further sowing of crops. Reducing of crop duration of Sugarcane and Arhar will go a long way in increasing the cropping intensity particularly in the States of Maharashtra and Uttar Pradesh. Recently, a new variety of sugarcane has been developed by the scientists which matures in only eight months.

Use of Plant Nutrients

The use of fertilisers, insecticides and pesticides is mostly limited to progressive farmers of comparatively more deeloped pockets in the States of Andhra Pradesh, Punjab, Haryana, Western Uttar Pradesh, Tamil Nadu and Gujarat. The use of plant nutrients during 1977-78 was maximum (76.7 kg/ha.) in Punjab and minimum (1.3 Kg/ha.) in Tripura. At all-India level it was 26.2 kg per hectare, whereas in Japan it is more than (400 kg/ha.). In order to make available adequate quantities of different fertilisers and plant nutrients to farmers at reasonable prices, it is necessary that we have sufficient production.

With an assured irrigation of 80 per cent and adequate supply of inputs, it should be possible at some point of time, in the near future, to produce about 300 million tons of food-grains from about 10 million hectares in our conditions of abundant sunshine and high temperature, provided the cultivation is confined to only better soils. Actually, China with cropping intensity of 1.3 and 51 per cent assured irrigation is able to produce 280 million tons of foodgrains in a lesser area than ours. Optimum use of fertilisers will not only increase the total production but also increase the land as well as labour productivity.

with the development of agriculture should also be encouraged, if not as a primary activity, at least as a subsidiary activity. In the hilly areas of the country, horticulture, cultivation of fruit crops and some small scale industries, which depend on forest products for their raw material, should also be encouraged. In the country side, household agro-industries based on farm products should be promoted to provide additional employment opportunities to the rural people. In the areas which have got large number of ponds and canals, programmes for development of inland fishery can be taken up through Fish Farmers' Cooperatives.

All these programmes for providing additional employment opportunities to the rural workers will succeed considerably provided the rural farmers and workers are appropriately educatd in favour of these programmes. Thus, agriculture extension service assumes greater importance. Government should think in terms of providing specialised consultancy service at the Block level to the farmers in respect of the use of fertilizers, insecticides, choice of variety of the crop suitable to different types of soil and rotation of the crops, etc. Other related aspects such as providing credit and marketing facilities to the rural people cannot be over looked. □

MFALDA in Keonjhar District

S. K. Naik*

MARGINAL Farmers and Agricultural Labour Development Agency (MFALDA) scheme has been introduced in 41 districts of the country and Keonjhar, a backward district in Orissa, is one of them. The total population of cultivators and agricultural labourers in the district is 2.21 lakhs, out of whom 3620 hold less than one acre, 27380 have between one and 2.4 acres and 31400, between 2.5 to 4.9 acres.

The Agency was orginally planned for a period of five years from 1970-71 to 1975-76 with a total outlay of Rs. 1 crore. Upto 1975-76 a sum of Rs. 70.15 lakhs was spent. Later the tenure of the Agency was extended for a further period of three years. The original programme of the Agency was to serve 20,000 mariganl farmers and 5,000 landless agricultural labourers. The small farmers possessing land below five acres were included in the programme of the Agency. The Agency could identify 98.217 small farmers, marginal farmers and agricultural labourers and 48,190 benficiaries were provided with financial and other assistance under different schemes till March 1979.

Subsidy and Loans

The subsidy items supplied to the marginal and small farms and agricultural labourers comprises fertilisers, pump set, milch cows, construction of community irrigation tanks, dug wells, rural works, etc. Payments of subsidy range between 25 to 100 per cent. The subsidy and other benefits are not paid in cash to the identified small and marginal farmer and agricultural labourers. The total amount of subsidy paid on agriculture and irrigation has declined from Rs. 2,93,700 in 1975-76 to Rs. 73,500 in 1978-79. On the other hand the subsidy on animal husbandry has gone up from Rs. 40,100 in 1975-76 to Rs. 93,300 in 1977-78. A fluctuating trend was observed in payment of Risk Fund contribution to cooperative societies. It was Rs. 168,900 in 1975-76, Rs. 57,600 in the next year, Rs. 91,300 in 1977-78 and Rs. 47,200 in 1978-79. In the year 1978-79 more importance was given to irrigation and Rs. 311,500 were disbursed as subsidy in 1975-76. Rs. 1383,600 subsidy was given towards wells, community irrigation projects and lift irrigation projects. In the next year the amount went down to Rs. 616,800 and to Rs. 240,000 in 1977-78. Agency could not arrange any training programmes for farmers.

It is heartening to learn that the Agency introduced the Antyodaya Programme. Under this scheme an intensive drive was launched to identify the Antyodaya families in three blocks of Anandpur sub-division. About 1300 families were identified. These identified families were helped to get credit from the financing banks and thereby avail the subsidy of the Agency.

But subsidy for community benefits is mostly momentary. For example, the community irrigation projects have gradually been going out of order. Their maintenance, supervision, etc. were insufficient. It is necessary to educate the tribal and rural people about the benefits of such schemes. Study of the problems of the marginal farmers and agricultural labourers were superflous. The different bodies assigned with the identification work failed to ascertain the deeper problems of such people living in interior villages. The loans sanctioned by the banks are sometimes misused by the beneficiaries. Hence, the Agency while recommending for loan and providing subsidy should see that money is utilised in proper way. The financing institutions should also have the proper field survey before sanction. It is necessary to develop a model rural development programme by making the farmers conscious of the need for change by exposing them to modern well-established scientific methods. To this end, the Agency should arrange necessary training programmes in different villages alongwith the demonstration programmes. The Agency should also see that cooperative societies are established in the tribal areas too. Like Dairy Cooperative, poultry should also be given proper weightage since this has good market and demand in the district. Involvement of marginal and small farmers in such activities will no doubt have a good impact on rural development. Lack of field staff of its own, is the handicap of the Agency in the implementation of the programmes more effectively. □

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In our country, rice is the most important crop, area-wise as well as production wise; the area cultivated under paddy is about 31 per cent of the total cultivated area and its production is 41 per cent of total foodgrains. Paddy requires lot of irrigation. In order to encourage the paddy cultivation, government will have to provide irrigational facilities to the farmers. In a case study on 'Farm Structure and Resource-Use' in D. P. A. P., the National Institute of Bank Management, Bombay, has found that irrigated crops are much more labour intensive as compared to unirrigated crops and improved high-yielding varieties are more labour intensive than local varieties of respective crops. The study has further pointed out that crops irrigated with private source are more labour intensive than those irrigated with public source. The same observations hold good for other areas/regions as well. Thus it can be said that if the farmers are encouraged to develop their own sources of irrigation it will increase labour requirements and hence additional employment opportunities. Keeping this in view, the Government must take energisation of pump sets in rural areas on war footing. In this context, rural electrification assumes greater importance. Only such projects are financed by the Corporation which are capable of yielding a gross return of not less than 10 per cent per annum on capital base at the end of the second year. However, in order to provide incentive to consumers, the revenue or part thereof can be waived during an initial period. The Rural Electrification Corporation should relax this viability condition of 10 per cent return on cost in respect of the special agricultural projects pertaining to poorer States.

> *An integrated forest, flood control and irrigation policy will have to be evolved.*

An integrated forest, flood control and irrigation policy will have to be evolved. Something needs to be done to utilise the excess water in the rivers of Northern India during the months of monsoon by directing it to other parts of the country by constructing dams wherever necessary and by laying a network of canals. This will not only provide vast employment oportunities and irrigational facilities to other parts of the country particularly Southern and Western parts, it will also reduce flooding in northern part of the country in the monsoon season and also minimise the impact of droughts all over the country. This will also encourage road as well as inland water transport.

Dry Land Farming

Spatial distribution of rain is quite uneven in our country. Major portion of rainfall is received during the monson season itself. In the regions where we do not get enough rains during the monsoon, dryland farming can be of much help to farmers. Indian Council of Agricultural Research with cooperation of the Canadian Government had set up 24 research stations in Andhra Pradesh to carry out research in the new farming techniques in areas of scanty rainfall. The scientists have succeeded in growing millet red gram, sun flower, groundnut and castor crops by dry farming. Since dryland farming required short duration varieties and small doses of fertilisers, it should be encouraged extensively. Research Centres to carry out research in dryland farming should be established in the areas having low rainfall.

Animal Husbandry and Dairying

Development of animal husbandary and dairying can play a vital role in providing additioanl employment opportunities as well as in enhancing the income of the rural workers. Since over 90 per cent of the livestock feed comes from hay and straw, development of animal husbandry can go side by side with the development of agriculture. The livestock production practices in India have been found not only labour intensive but also labour distributive and rural in nature. The National Commission on Agriculture in their interim reports on milk and poultry, piggery and sheep production programmes through small-marginal farmers and landless agricultural labourers have identified that the promotion of livestock production could be relied upon as the major instrument of social change.

The Commission have recommended a list of districts for taking up milk, poultry, piggery and sheep development programmes, respectively. Only those districts for implementation of these programmes were selected as were already having one or more of the developmental agencies.

Land Reform

The Farm Management studies have shown that an inverse relationship obtains between farm size and productivity per care. The small farmers have higher productivity per acre and are more efficient in economic sense.

The family labour input as well as total labour input is higher in small farms. Land Ceiling and Land Reforms Act should be implemented with utmost sincerity throughout the country, and particularly in the States where concentration of land is more. The land declared surplus under the various Land Ceiling Acts should expeditiously be acquired by the States and distributed amongst the landless agricultural labourers, particularly belonging to backward communities. This will increase the labour absorption per unit of land cultivated as well as the productivity of lands. To encourage the use of high yielding varieties in smaller farms, cerdit facilities through financial institutions should be made available to the farmers.

Government have already taken steps in regard to organising the rural labour by constituting a Central Standing Committee on Rural Unorganised Labour to advise them on various administrative and legislative measures to ameliorate the socio-economic conditions of Rural Labour and for promoting their organisation. Enacting a Central Legislation on the lines of Kerala Agricultural Workers Act, 1974 will go a long way in improving the socio-economic conditions of agricultural rural workers. Efforts should be made to create, a well-informed constructive and responsible minded labour force. Once the rural workers are aware of their rights and various benefits contained in different Acts enacted by the Government to provide benefits to them, they will themselves try to secure those benefits.

It is evident that with a view to improving the conditions of rural people, creation of employment in cultivation should not be considered in isolation. Animal husbandary programmes which go very well

Recovery of Agricultural Advances

S. K. Gupta*

THE MOUNTING OVERDUES in the agricultural advances of cooperatives and commercial banks have been causing serious concern to the policy makers for the last few years The increasing trend in the overdues of the credit institutions restricts the smooth flow of credit and thus adversely affects the productive investment in Agriculture and its modernisation on a large scale. In case of cooperatives the increasing levels of overdues restrict their borrowing capacity from the higher financing agencies and in case of commercial banks it may lead to postponement of fresh disbursements. The recovery of agricultural advances is less than 50 per cent in cooperative and commercial banks.

Reasons

The major reasons for the poor recovery are as follows :—

Natural calamities and diseases : Such calamities as droughts, floods, cyclones, famines, death of birds and animals, disease-epidemics and family catastrophies and the fluctuating marketing conditions are beyond the control of either the banker or the borrower. They result in partial or total crop failure and huge financial losses. Thus the recovery fails and overdues mount.

Inadequacy of Loan : Many a time, the banker has the tendency to believe that the borrower has given an over estimation and, so sanctions less amount. They finally result in half finishing of the venture or total misutilisation of loan.

Forms of Loan : Loans are mostly issued in the form of cash, and not in kind. Only the loans for fertilizers are issued in kind. If all the loans are given in kind it would certainly help minimise its misuse by the farmer.

Misappropriation of Funds : With or without the connivance of the bank officials it happens sometimes that even though the finance is adequate and timely, it does not reach the borrower to the full extent. Such a practice is fraught with consequences similar to those in the case of inadequate finance.

Untimely Grant of Loan : Untimely grant of credit also results in misuse. There is a wide gap between the date of application for loan and date of granting it

Illiteracy and Ignorance of Borrowers : Most of the farmers are illiterate and they do not attach desired importance to the productive use of loan. On the other hand, they place greater emphasis on its use for consumption, and for social and religious ceremonies. They, thus, misuse the loans. This misuse leads to failure of repayment of loan in time.

Improper Repayment Schedule : Sometimes the repayment schedule is fixed without keeping in view the capacity of the farmer to repay and the timing for such repayment does not concide with the period of earning.

Defective loan appraisal particularly in term of assumptions made with respect to yields, input costs and output prices.

Unsatisfactory marketing arrangements resulting in the borrowers getting lower than expected prices for their produce.

Unforeseen expenses of the borrowers and their tendency to repay loans from other agencies which carry higher rates of interest.

Lack of Supervision : It has been found that once the credit is issued to a person he is not asked to explain the purpose for which it has been used. Farmer utilizes the loan as he likes and no supervision and guidance is given to him for its productive use. The misutilization of loans increases the overdues.

Wilful default and political factors.

Absence of expeditious recovery of agricultural advances by financial institutions restricts the smooth flow of credit and adversely effects the productive investment in agriculture and its modernisation.

Suggestions for Improvement

Given below are some of the steps which should be taken to help improve the recovery of loans.

There should be coordination rather than competition among commercial banks and cooperatives in extending agricultural loans. Such a coordination would help minimise double financing problem. Credit planning must take care of this.

Finance must be supplemented by technical guidance for effective use of credit. Commercial banks, extension officials and cooperatives should function together to accomplish this.

A firm collection policy should govern the recovery of loans. Objectivity and sympathetic attitude on the part of bankers must be promoted by suitable training of personnel.

There must be a provision to ensure that the repayment of loans is made in more than one or two instalments in a year.

Integrated Rural Credit should be strengthened to reduce the overdues in the cooperative sector.

Polite but firm recovery notices should be served on the borrowers about a month before the due date advising them about their ensuing liabilities and repayment within the stipulated time.

Registered A.D. notices should be served to the defaulters and their guarantors advising them to repay bank's dues or face trial in the court of law.

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Adoption of area approach for lending, particularly to supervise the utilization of loans.

Tie-up agreements with marketing agencies.

Timely reminding of borrowers through personal contacts and serving of demand notices.

More careful appraisal of loan applications.

In the cse of group loans, making all members aware of their collective responsibility.

Stern action against wilful defaulters.

The working group on Agricultural Credit Schemes of Commercial Banks has made the following suggestions to improve recovery.

Dues of the commercial banks should be made recoverable as arrears of land revenue.

Special recovery officers should be appointed by the State Governments to help commercial banks.

Banks should be allowed to dispose of securities without the intervention of courts.

Government should purchase the land of the wilful defaulters, if purchasers do not come forward to buy them.

State Governments should not pass indiscriminately orders granting moratorium, remission of loans, land revenues etc.

Introduction of farm pass books with legal backing to eliminate the possibility of a borrower taking loans from more than one agency.

Crop insurance.

Defaulters of bank loans should not be given 'taccavi' loans or any other assistance by the government.

Some of the recent studies have shown that medium and large farmers accounted for the larger amount of overdues as compared to the small and marginal farmers. However, the number of defaulters was high amongst marginal and small farmers. It is also reported that the bulk of the defaulters are chronic defaulters with overdues for three years or more. While the wilful defaulters mainly belong to the high caste literate group with large-sized holdings, the non-wilful ones belong to middle class illiterate group with smaller holdings. The managements of banks may, therefore, conduct similar studies and lay-down policies on the basis of their findings.

Evaluation of Food For Work Programme

UNDER the Food for Work Programme, 46.5 lakh tonnes of foodgrains were utilised by the States till November, 1980. Also a total of 8,686 lakh mandays of employment were generated till the end of March, 1980. This is revealed in the final evaluation report of the Programme, by the Programme Evaluation Organisation (PEO) of the Planning Commission. During the three and half years of its implementation, the Programme has generated considerable enthusiasm and provided employment opportunities on decentralised basis by making use of surplus foodgrains with the Government.

The findings of the study have also helped the Government to replace the Food For Work Programme by a new one—National Rural Employment Programme. This scheme has since been included in the Sixth Plan.

Some of the more important findings of the Study are: The utilization of foodgrains during 1978-79 was as high as 100 per cent in five States, namely Andhra Pradesh, Gujarat, Madhya Pradesh, Uttar Pradesh and West Bengal and 90 per cent in other States namely Bihar, Maharashtra, Orissa and Rajasthan. The community assets worth Rs. 24 lakhs were created and 3.7 lakh mandays of employment was generated in the villages. The most sought-after programme was the construction or repair of village roads and streets on which 2,28,733 mandays were employed. This alone constituted 61.4 per cent of the total mandays generated. The next in importance was minor irrigation work, followed by construction of community works like school buildings, dispensary buildings, panchayat Ghars, drinking water wells and Kanji houses etc. The study brought out the importance of planning from below with the involvement of the rural poor.

In the light of the findings, the Study has suggested that the scope of the programme might be expanded to cover other activities like social forestry, plantation etc., that the programme should include nutritional food items like milk, cheese, fish, pulses etc., that payment of wages be done either on daily or weekly basis, and that the number of outlets for distribution of foodgrains be increased. □

Emancipation of Bonded Labourers

Harrowing account of ill-treatment and torture of bonded labourers has come from Karnataka. Shri Thippa, one such unfortunate labourer was sold in the open market for Rs. 50 a year. He was not only forced to do hard labour for sixteen hours a day but also kept half starved and physically assaulted by his master. He and 62 other similarly treated bonded labourers have been freed from bondage through state intervention and rehabilitated at Madal (BRT Colony) in the Channagiri Block of Shimoga district. These freed labourers have been given houses, land and milch and other animals and provided financial assistance for the purchase of agricultural implements, seeds and fertilisers. This rehabilitation scheme jointly financed by the Centre and the State on 50 : 50 basis has been implemented at a cost of Rs. 2.88 lakh.

Shri Thippa is now a happy person. He tills his land with his own pair of bullocks. Known as the main singer in the Bhajan Mandali of the Colony, he sings songs in praise of the economic and social legislations which led to his emancipation and opened up new life for him.

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Unicellular Algae

A New Source of Food

Umesh Chandra Pandey*

THE use of algae as food is not a new idea. Japanese take as many as twenty different kinds of algae including members of Rhodophyceae, Chlorophyceae, Phaeophyceae and Cyanophyceae. *"Porphyra tenera"* —a red alga, popularly known as "Asakusa nori" in Japan is cultivated in the shallow sea waters at various places in the coastal regions of Japan. Its total sale per year amounts to 30 million dollars (approx.) which easily exceeds the sale of any other marine product, including whales and fishes. In India *Ulva* sp. is abundantly taken by the people near the seashores.

However, the idea of culturing unicellular, fast growing algae for food and feed came relatively late. About two decades back Harder and Von Witsch of Germany and Spoehr of the USA suggested such a possibility for the first time.

At present the work on this line is being vigorously carried on in some of the advanced countries of the world, to solve the anticipated food crisis. The results are very promising.

China has introduced the slogan "Everybody grow *Chlorella*'. The *People's Daily*, explains that *Chlorella* is a unicellular hydrophyte, so small that if 16,000 are placed end to end they cover only about 4 inches. Every hundred pounds of dried *Chlorella* powder contain 45 lbs. of albumen—five and a half times as much as rice and three times as much as wheat. They also include 15 lbs. of fats and a great amount of carbohydrates and vitamins. Chinese have pastry, sweets and sauces for the table and babies are being satisfactorily fed on *Chlorella* in place of powdered milk.

Better Source

Higher plants build up their organs from products of photosynthesis. But only some plants are suitable as food or fodder.

The rate of photosynthesis can be enhanced by increasing the nutrients, carbondioxide and light energy under conditions of artificial culture but the crop plants can not be grown in culture media on large scale. It is only the unicellular algae which build up themselves exclusively out of proteins, fats and carbohydrates. They can be easily handled in the laboratories. It is universally known that there is no loss of dry matter during partition of the cells and under favourable conditions one cell generation needs only twenty four hours, on an average. In this way the algal mass doubles every day.

Higher plants are capable of using only 1.5-2 per cent of light energy falling on the leaves whereas *Chlorella* can bind 2.5-13.5 per cent of the incoming light energy in the form of organic matter. Unlike crop plants, different species of *Chlorella* can grow from 5°—35°. Therefore, the variation of seasonal conditions does not arise in a number of cases and its culturing can be universally adopted. However, the most optimal temperature range is 25°—35°C. Isolation of *Chlorella* sp., is easy in every part of the world because they can hardly be dessicated and are found in abundance in nature.

Proteins are the most important constituents of all the unicellular green algae. In *Chlorella* sp. about 50 per cent the fats and the rest (8-10 per cent) are the ashes. It contains all the amino acids essential for the animal and human nutrition. The young growing cultures are rich in proteins while after the cell-division phase, the assimilates are lipids and 30—90 per cent of the total lipids are true fats.

Unicellular green algae are very rich in vitamins. Witsch holds that vitamin B_{12} values around 0.5—10 gamme per gram of dry matter which is equal to that of lemon juice.

Chemical Composition of Algae (g/100g on dry weight basis)

Component	Spirulina	Chlorella	Scenedesmus
1	2	3	4
Protein	62—68	40—50	50—55
Lipids	2—3	10—15	12—19
Carbohydrates	15—20	12—16	10—15
Fibre	5—8	6—8	10—12
Ash	10—12	8—10	6—8
Nucleic Acid	6	6	4—6
Moisture	5—8	5—8	5—7

Vitamin Content [illegible] and Egg (mg/100 g. Protein)

Vitamin	Scenedesmus	Egg
Thiamine B_1	3.19	0.77
Riboflavin B_2	7.34	2.35
Niacinamide	13.10	0.63
Folic Acid	0.15	0.04
Pantothenic Acid	2.20	12.20
Cabalamine B_{12}	0.07	0.02
Tocophenol	26.30	7.90
Biotin	0.04	0.79
Ascorbic Acid	38.00	
B—Carotene	45.58	
Total Carotenoids	394.65	

*values given for drum dried algae.

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Vitamin B_{12} and E are fairly large in amount equalling that of the leaves of the higher plants. The mineral matter present in these algae are in the order of P, K, Mg, S, Fe, Ca, Mn. Cu, Zn and Co. From the above it is evident that unicellular algae are highly rich in food-material.

Cultural Methods

Like other plants, the growth of *chlorella sp.* and similar forms (*Arthrospira sp.*) depends on the availability of light, carbondioxide and nutrients. In culturing algae all these factors need optimal provision and the medium is occasionally or continuously agitated to prevent the precipitation of algal cells and even distribution of the medium. Roughly speaking, three types of tanks have been devised so far to culture these algae on the mass scale. They are :

(1) *Closed Circulation Method* : The culture is circulated in a very large plastic tank with carbondioxide enriched air. The method is usually preferred by the American workers.

(2) *Open Bubling System* : In this system, the culture is contained in an open shallow trench which is continuously agitated by aeration of carbondioxide enriched air.

(3) *Open Circulation System with a device for intermittant Sweeping* : The alga is cultured in a shallow pond. The culture is circulated by means of movable pipes having many jets for the ejection of culture liquid.

Utilisation of algae as supplementary protein in human diet and cattle and poultry feed has great potential.

Harvesting and processing

At intervals, a certain part of the culture is transferred to a control house where it is centrifuged, thereby, separating the alga from the nutrient medium which is again sent to the culture pond. The alga is washed and dried in a vacuum and later ground to obtain a fine green powder. Tamiya holds that from the "open circulation" method actually run throughout the year, we obtained an average yield of 8.6/gm^2/day which would correspond to a yield of 13 metric tons/acre/year. This value can be easily compared with rice yield which is known to be the highest in Japan. The average yield of rice grains is about 1.4 tons and the highest yield value so far obtained is 3.6 tons/acre/year. At the same time we must also consider the fact that the main photosynthetic product obtained from the crop plants are carbohydrates where as the main material formed by *chlorella* is protein which comprises about 50 per cent of the total dry weight.

Nutritive value

The algal powder has got a flavour and taste similar to that of powdered green tea. It is interesting to note that a lot of experimentations have so far been made regarding the practicability of using algal powder as food stuff. They have added varying concentrations of algal powder to various foods such as bread, noodles, soups, ice-creams, fermented soyabeans etc. Their taste is more agreeable to Japanese than to Americans probably because they have already been in habit of taking other algae as food.

Dr. Fink—a German worker—while studying the feeding of rat with microbial proteins (yeasts, molds, mushrooms etc.) found none to be of so high nutritive value and none was eaten with such pleasure by animals as algal protein. Dr. Nakamura of Japan experimented with chick and reports that the addition of algal powder to assorted chick diet was found to give no favourable effect in promoting the growth of the animals but in the adult hens it had a very favourable effect upon the egg-laying of the animals. The algal food is not only valuable because of its protein richness but recently it has been shown by Shirota and Takechi that *Chlorella* cells contain certain *microbes* and the product of vitamin B_{12} is considerably increased by its addition in certain bacterium.

Recently the Japan Nutrition Association has released a very interesting report regarding the actual mass-culturing of algal.

Their Farm size—0 79 acres.

Days of operation per year—300

Average yield per year—8 gms/m^2

Total Culturt area—3,000 m^2

Total algal yield per year—7,200 kg (dry weight)

They claim that the algal powder produced in the chlorella farm is cheaper than skimmed milk powder ($ 1.20 per lb.) with which *Chlorella* can be favourably compared to food value.

Inpite of the fact that vigorous efforts are being made in the direction of making algal culture a feasible tool for the production of food, the experimentations are still in infancy. The search for best suited species has yet to be made. Besides *Chlorella sp.*, *Saenedesmus sp.*, *Arthrospira sp.* and a number of other algae are expected to prove better in growth and food value.

Acceptability of algae is another factor and is connected with the food and taste preferences, which vary a great deal, even within a country like India. Preliminary trials with limited people in the laboratory have shown encouraging trends in accepting conventional diets containing algal. More work remains to be done to establish the nutritional safety as stipulated by the Protien Advisory Group and to modify the existing set up of large scale production of algae in order to reduce the cost. Though the utilisation of algae as human, supplementary protein is the ultimate aim which has to be achieved in future years to come there is a great proteintial to use algae as cattle and poultry feed. Every effort is required to minimize the production cost of algea without lowering the quality to make their utilisation a success. ○

Integrated Health and Nutrition Programme

Pandurang B. Jorapur**

THE ULTIMATE GOAL of any welfare State is to achieve the maximum welfare of the maximum number. Health and nutrition come first in a welfare society. In India our basic problem is lack of sufficient food, not merely good food or nutritious food. The normal intake of food per person per day in India is about 1900 calories and 50 gms. of protein as against the requirement of 2800 calories and 75 gms. of protein.

Our Five Year Plans have been drawn up keeping in view the requirements in respect of both health and nutrition. As regards health, one of the objectives of the health programme during the first three plans was to 'provide curative, preventive and promotional services in rural areas through establishment of Primary Health Centres (PHCs) and sub-centres'. As regards nutrition, it was emphasised in the Fourth Plan that, when so many are under-nourished, more food is the first step towards better nutrition. But even before that is achieved, we have to give attention to severe malnutrition among the important sections of the population, namely, pregnant women, nursing mothers and pre-school children. Nutritional deficiency among these sections may result in irreparable damage, namely, high pregnancy wastage, maternal mortality and infant mortality. In order to attack the problem of mal-nutrition at its root, it will be necessary to provide these sections with minimum services. It is with this objective that in the Fifth Plan care of these persons was included as an essential part of Minimum Needs Programme.

But, unless minimum health and medical facilities are provided simultaneously to these sections, maximum benefit of nutrition cannot be derived. This is particularly true of pre-school children, among whom frequency of morbidity is very high. Unless morbidity rate is brought down, nutritional status cannot be raised. Morbidity in turn is influenced by nutritional status. They are thus inter-dependent. This is also applicable to pregnant women and nursing mothers.

It is with this view that the Government of India has rightly launched an integrated health and nutrition programme in the country in 33 selected blocks in 1976. These services are rendered through Anganwadi centres under the supervision of a PHC and Child Development Project Officer. There are about 3,000 Anganwadis covering about 2.40 lakhs of children and women. There is at least one Anganwadi in each village of the selected Block. An Anganwadi worker holds its charge.

The purpose of the present paper is to highlight some of the drawbacks in the Integrated Child Development Scheme and to suggest certain measures to improve the programme in the Sixth Five Year Plan. This is done under 5 sections, namely, (1) coverage of population (2) Service and Distribution (3) Health Services (4) Evaluation and (5) Re-organisation.

One of the objectives of the health programme during the first three plans was to provide curative, preventive and promotional services in rural areas.

Coverage of Population

One of the indices of success of any programme is the proportion of population covered. The response of the people depends on their attitude towards the services provided. Psychological factors and cultural factors may influence the attitude of the people in a programme like Integrated Child Development Scheme where the beneficiaries, including young children and nursing mothers are required to go to Anganwadis personally and eat the food there itself. Though our people are poor, some of them don't have enough to eat, but they may not be prepared to take cooked food as gift, and much less prepared to eat it in a public place. Such an attitude of the people might be responsible for lack of sufficient response to Integrated Child Development Scheme as happened in Karnataka. At the end of the first year of the programme (December 1976) about 43 per cent of the pre-school children were attending the Anganwadis (to receive food), and in May 1978 the proportion increased to about 59 per cent. On the other hand, the proportions of women attending the Anganwadis were just 40 per cent and 41 per cent respectively, during the same period. The proportion of nursing mothers attending Anganwadis was still lower (about 25 per cent). Personal inconvenience in leaving the house may be an additional reason for low response. But custom and attitude towards cooked food might also be an important reason.

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It is therefore necessary to find out ways of supplying semicooked food packed in tins and labelled 'tonic' for pregnant and nursing mothers and children to reduce the chances of its being shared with other older children and adults.

It is also equally necessary to impress upon all classes of people whether 'rich or poor' that pregnant and nursing mothers and children need special and additional food. It appears from the findings of some studies that 60 to 75 per cent of pregnant and nursing mothers are not aware of the necessity of additional or specific food. Such awareness should be created through frequent group meetings, film-shows and radio and should be followed by house to house visits by para-medical personnel.

Service and Distribution

The food that is distributed through Integrated child development Scheme is very meagre, worth about 25 paise per person per day. The quantity given may further vary, often decline, with variation in the prices of food stuff. Instead of fixing the per capita money to be spent, minimum quantity of food material should be ensured. This of course involves heavy outlay on the programme. But it is worthwhile and justified, considering the serious consequences of nutritional deficiencies and dismal poverty and ignorance of masses. If necessary Nutrition Cess may be levied.

About 75 per cent of the pregnant and nursing mothers are not aware of the necessity of additional or specific food.

It is really pitiable that even this small quantity of food may not be distributed regularly, on account of lack of proper organisation of distributional machinery, administrative bottlenecks procedural rigidity and also personal weaknesses of either the Anganwadi worker or her assistants. The usual problems in the distribution of food are: lack of sufficient stock of food and fuel besides pilferage.

The first measure to be taken is to provide a self-sufficient independent and modest building for each anganwadi. Secondly, supply of food stuff should be planned properly at various levels. Thirdly, proper arrangements should be made to ensure sufficient stock of fuel, without relying solely on contribution by local people. The anganwadi worker should be authorised to spend reasonable amount in case of emergency. Fourthly, people of integrity should be appointed to take charge of the anganwadi and members of the local Mahila Mandal or Youth Clubs should be associated with distribution of food, wherever they are in existence, to avoid pilterage.

Health Services

Health services from an important component of the integrated child development scheme. The success of the entire programme depends upon the effective medical service. Immunisation or preventive measures and treatment of common diseases or curative services are the two aspects of health and medical facilities. The proportion of beneficiaries availing of these facilities is not adequate. This is particularly true in case of pregnant and nursing mothers. Here again, psychological factors and local customs appear to play an important part. Many old women believe that tablets and injections (iron folic tablets and anti-tetanus injections) are 'injurious' to pregnant mothers. It is therefore necessary to educate these persons also, because the parents and in-laws still are the decision makers in most of the families.

The medical and para medical personnel are likely to have their problems; dissatisfaction with job, frequent transfers, inconveniences in rural area, inadequate staff, inadequate and irregular supply of drugs, lack of amenities in the PHCs and the hospitals and above all, the wide area to be covered, where transport facilities are poor or even completely non-existing. It is however, heartening to note that there are still some young persons who are service-minded and prepared to serve in rural areas, if minimum professional requirements are provided. Firstly, there are large number of technically trained un-employed persons and they should be appointed suitably. Secondly, adequate and regular supply of drugs etc. should be ensured. There is no doubt that there are certain vested interests in the administration of health also, as in other spheres. There should be decentralisation of administration and the local medical officers should be given certain financial powers, to ensure smooth working of the PHCs and hospitals. Thirdly, a complete kit-bag and a motor-cycle or a bi-cycle to medical staff would go a long way in rendering badly needed medical services.

Evaluation

Periodical evaluation of the programme is essential for the success of the programme. The basic requirement for this purpose is maintenance of proper records and registers on all the aspects of the programme. At present, complete and reliable data are not available, for instance on morbidity and treatment of beneficiaries. In the absence of these data one cannot measure the impact of the programme on morbidity and mortality. It is true that an anganwadi worker is required to maintain about 27 various registers etc. But the most essential registers like, attendance registers, records of weights, ante-natal cards etc. cannot be ignored. A consolidated record or register should be available at PHC for the entire area. Each integrated child development scheme project should be affiliated to a Demographic/Population Research Centre in addition to a Medical College. They should jointly evaluate the programme periodically and there should be feedback of the findings along with necessary guidelines.

Re-organisation

Lastly, there is a need for re-organisation of various supplementary feeding programmes implemented in the country, through different Ministries and Departments. All these programmes should be implemented through one Ministry only, preferably through the Ministry of Health and Family Welfare. Moreover, all these programmes should necessarily be integrated with health programmes to be of maximum benefit to beneficaries and also to avoid invisible wastage of resources. For example, mid-day meals programme will not give maximum benefit, unless the health of the school children is maintained. This also applies to children in slum area or tribal area.

Nutritional level has an important role to play in the welfare of man. There is severe under-nutrition in our country. Its consequences are very serious. It may not be possible to improve the status of the entire population, though it should be the ultimate goal. But immediate attention has to be paid to ameliorate the conditions of the pregnant women, nursing mothers and pre-school children.

There are a number of nutrition programmes in the country. Nutrition would be more effective if it is integrated with health services. The Integrated Child Development Service Scheme was launched in the country with this objective in 1976. The coverage of children and particularly that of pregnant and nursing women is unsatisfactory. With presistent efforts situation can be improved. □

TRENDS

Reorganisation of Workers' Education

THE EDUCATION programmes for workers are being reorganised to enlighten them not only on the rights of workmen but also on their obligations towards the country, industry, trade unions and family. This was one of the recommendation made by the Conference of Regional Directors of Workers' Education held recently. The conference also suggested that only those unions which broadly accept the objectives of the Central Board of Workers' Education might be encouraged to avail of grant-in-aid programmes.

The programmes would stress that collective bargaining should mean negotiations, discussions and mutual adjustments in good faith. Emphasis will be on the importance of voluntary arbitration. Avoidance of wastage, reduction of absenteeism, punctuality, observance of safety rules, discipline, proper care of machines, inculcation of sense of fellow feeling and of work ethics would also be covered.

The establishment of a separate Central Training Institute for training a new cadre of education officers to implement rural education programmes for workers was also recommended.

Shri P. Venkata Reddy, Deputy Minister for Labour, while addressing the conference, suggested setting up of a co-ordinating committee of chairmen of workers' education boards, chairman of Executive Council of National Labour Institute and concerned officials to evolve an integrated approach to the rural education. □

Profitability in Public Undertakings

The number of public sector enterprises reporting profits rose from 82 to 103 in the last three years while the number of those sustaining losses dropped from 73 to 66.

Disclosing this in the Rajya Sabha recently, the Minister of State in the Ministry of Finance said that the net profit before tax of all the public enterprises, after setting off the losses, had risen from Rs. 159.54 crores in 1977-78 to Rs. 185.05 crores in 1978-79 and Rs. 226.68 crores in 1979 80. □

Workers' Participation to be Implemented

INAUGURATING the national seminar on "Making Participation Work" in New Delhi recently Shri Narayan Datt Tiwari, Minister for Planning and Labour said that the Government was determined to make workers' participation a success which was enshrined in the Constitution and formed an essential element of the 20-Point Economic Programme.

But there was difficulty in selecting the representatives of the workers to be associated with management, as there was no unanimity among the trade union leaders whether the recognised union should be authorised to nominate the persons, he added. He further said that the managements on their part were reluctant to share information with workers on the ground that they might misuse such information. He said, "The Management must accept workers as an essential part of the productive system and seek their confidence and cooperation in improving industrial performance.' □

Women Want Small Families

PRIME MINISTER Smt. Indira Gandhi has written a letter to all the Chief Ministers of States and Union territories in which she has expressed her belief that the people of India especially women folk do want family planning. The vast majority of them may not be concerned about the demographic situation but they look at family planning as one of the means of improving the quality of their own lives and of giving better opportunities to their children. She has asked the Chief Ministers of States and Union Territories to assume the responsibility of implementing the family planning programme involving all the sectors of the society and all the development departments of the Government. □

Bihar Reservior Scheme

NATI Reservior scheme of Bihar, estimated to cost Rs. 4.14 crores, has been approved by the Planning Commission.

When completed, the dam will irrigate a total of 2315 hectares, of which Kharif area will account for 1862 hectares and rabi crop 453 hectares. □

A case study

Lac Marketing in Chhotanagpur

Dr. K. P. Singh*

LAC, a versatile natural resin, is grown over a wide area in India, but Bihar is its largest producer, Chhotanagpur plateau alone accounts for about 50 per cent of lac produced in the country. Lac is grown in forest and subforest region in small patches or holdings of widely scattered trees by poor and backward communities like adivasis. The places where lac is cultivated, are mostly hilly and isolated due to poor transport. Markets for stick-lac and facilities for its processing are in urban centres. The lac ininsects excrete the resin—Lac on twigs of the host trees, which become mass encrusted lac. When it is cut from trees, it is known as stick-lac. The stick-lac is crushed and washed to prepare seed-lac which contains 3 to 7 per cent impurities. The remaining impurities are removed by one of the many processes used to produce shellac. Lac is exported to the developed parts of the world for consumption in the sophisticated industries. Between the cultivators in the remote hilly places and the end users of lac abroad, a host of middemen thrive on lac trade.

System of Marketing

Mareting of lac involves a series of functions such as assembling, transportation, processing, storage and sale to internal as well as external buyers. These functions are performed by middlemen consisting of paikars, arhatiyas, whole salers, manufacturers, brokers, commercial analysts and shippers.

Primary markets or haats are an important organ of the rural economy of Chhottanagpur and particularly of lac trade. The system of marketing at the primary level operates against the interest of the defenceless growers who are denied remunerative prices for their produce. A part of the produce is collected from the houses of the growers by the Paikars and the village merchants at a price which is invariably lower than the price prevalent at the haats. Small buyers sitting by the side of roads leading to the haats often prevail upon the lac growers to sell their produce before entering into the haats and getting acquainted with the prices prevalent there.

Those growers, who manage to reach the haats, are approached by a number of buyers such as Paikars, village merchants, Arhatiyas and the agent of manufacturers. They have a secret understanding among themselves to keep the prices at the lowest point.

The growers coming to the haats are exploited in many other ways also. They are required to pay (in kind) various charges which on an average come to 10 to 12 kgs. per quintal of stick-lac sold. The deductions in respect of quality remain unduly very high because the assessment of quality of stick-lac on the spot is made by the buyers themselves who generally overestimate the 'impurities', as there is no device available for proper assessment of qualities. The barter system prevalent earlier has almost disappeared since the seventies.

From haats, the stick-lac reaches the secondary market where it is heaped loose or kept in bags by Paikars etc in the godowns of arhatiyas, who display the commodity for sale and invite quotations from buyers. When deal is effected, the price is paid to the sellers by the arhatiyas who realise it from the buyers latter on. At some places in Chhotanagpur the village merchants and paikars deposit their stick-lac in arhatiyas' godowns for sale at a future date and get back 50 to 70 per cent of probable sale proceeds as advances. At this level on account of various imposts uch os tolls, taxes and commissions the price of stick-lac get much inflated.

Processed lac is sold in the terminal and export market where functioneries like brokers, commercial analysts, shippers operate and deals for export are finalised.

The frequent changes in prices of lac can be attributed to several factors, such as quantum of production, changes in the overseas demand, manoeuvering of the market by the manufacturer-exporters and the speculative-activities prevalent in the trade.

Fluctuations in Prices

A high degree of fluctuation in the price of lac and lac-products is distinct feature of lac trade. The frequent changes in prices of lac can be attributed: to several factors, such as quantum of production, changes in the overseas demand manoevering of the market by the manufacturers and exporters and the speculative activities prevalent in the trade.

The rising trend of prices at the export market takes time to be reflected at the haats while downward trend at that level has immediate reactions at the haat level. This is mainly due to lack of a well developed communication system between the haats and the export market and a deliberate concealment of informations regarding price-rise by the intermediaries. The unit value realisation from the export of lac recorded a substantial rise during the seveation following the oil crisis which raised the prices of lac in the international markets, but the price of stick-lac did not rise in that proportion, as a result of which the share of lac growers in the export-earnings recorded a decline.

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*P.G. Deptt. of Commerce, Magadh University, Bodh-Gaya.

The crop failure of the seventies gave a severe blow to the financially weak intermediaries who had neither working capital nor storage facilities of their own. The big manufacturer exporters began to make purchases of stick-lac directly from the haats. Now a few big manufacturer-exporters control about 80 per cent of export of lac from India.

Government's Intervention

The buffer stock scheme was started by the Government first in 1962-63 and again in 1975 to ensure remunerative price to the growers when price of stick-lac crashed to its lowest bottom (price fell below Rs. 1 per Kg.) The state procurement agencies were nominated under this scheme to purchase stick-lac directly from the growers at a minimum price of Rs. 3 per Kg. and to supply the same to the State Trading Corporation for the purpose of export. The Government of Bihar accordingly nominated its three agencies.

The procurement agencies in Bihar started their operations since Kataki crop of 1975-76, but they failed to provide any significant relief to the lac growers spread over a wide area on account of various constraints including financial one. The agencies with their limited financial resources were not in position to purchase all the market arrivals of lac at the minimum price. Since the price of stick-lac ruling at the haats were lower than the minimum price being offered by the agencies, some unscrupulous agents of the procurement agencies themselves made purchases of stick-lac at lower prices and supplied the same to the procurement agencies at the minimum price of Rs. 3 per Kg., defeating the very purpose of the scheme.

Apparently there is buyers' market in lac where the sellers (lac growers) with weak bargaining strength have no say in price determination.

Moreover, the operations of the procurement agencies were also confined to few selected haats near the districts' headquarters or towns.

Another shortcoming of the scheme was the lack of experience and expertise on the part of the S.T.C. in channelising the export of lac procured under the scheme. Lac, being branded product, is exported under brand names of a few big firms who have established markets abroad. The S.T.C. was totally a new name.

The Government with a view to check mal-practices at the procurement level arising out of a wide gap between openmarket prices and the minimum price of stick-lac, reduced the minimum price itself to Rs. 2.25 per Kg. in 1978. The reduction in the price coincided with the crop failure which raised the open market price of stick-lac. The procurement agencies could not purchase stick-lac in the Kataki crop of 1978-79, and in subsequent crops. The Bihar State Export Corporation was constrained to leave the field for ever. This action of the Government helped indirectly in strengthening the grip of the big manufacturer-exporters over the trade.

Suggestions

Apparently there is buyers' market in lac where the sellers (lac growers) with weak bargaining strength have no say in price determination. The Government's intervention in the trade did not cut much ice on account of the basic infirmities of the procurement agencies and lack of flexibility in the buffer stock operation scheme itself.

Thus, any effort to revitalise the lac trade must aim at ensuring remunerative prices to the lac growers. Considering the importance of lac in tribal's economy the Government at the earliest opportunity, should take over the export-trade in lac and a public sector undertaking with its headquarter at Calcutta and a branch in each major lac producing state be set up to canalise the regulate the entire export of lac from India. At lower levels, lac growers cooperative and lac manufacturer's cooperatives be set up.

In Bihar the Bihar State Cooperative Lac Marketing Federation Ltd. (BISCOLAMF) is to be strengthened with an additional capital to be provided by the National Cooperative Development Corporation (NCDC) and the State Government. BISCOLAMF would produce seed-lac from the Manufacturer's Cooperatives and keep it in air-conditioned godowns to be constructed especially for this purpose. Lac Growers' Cooperatives would procure stick-lac from their members and outside at a predetermined price and sell it to the Manufacturers' Cooperatives. BISCOLAMF would get the seed-lac or shellac blended as per the specifications provided by the Lac Export Corporation and supply to the latter for export.

Besides restructuring of the existing systems of marketing, the efforts need be made to develop new uses of lac, particularly to push up the domestic consumption. ☐

Progress
in a
country
of
India's size
and
diversity
depends on the
participation
and
full involvement
of all
sections of the
people

—Smt. Indira Gandhi

Sewing Machine Industry in Ludhiana

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R. M. Myer*

LUDHIANA, famous as the Manchester of Punjab and also the Capital of Small Scale Industry in the State, is the biggest sewing machines manufacturing centre in India. The growth of this industry in Ludhiana is a post-Independent phenomenon. A beginning was made in 1949 when Shri C. R. Auluck, a promising entrepreneur from Lahore started a small unit for asembling of sewing machine parts mostly imported from Japan and partly received from spare parts manufacturing units of Bassi Pathanan. Now M/s. C.R. Auluck & Sons is one of the leading sewing machines making units of Ludhiana. They sell the product under the trade mark "Luxmi". The second unit was started by Shri Lajpat Rai in 1952 and is now known as "Rita Mechanical Works". It is now manufacturing full fledged sewing machines under the trademark "Rita". Another unit which started as a repair shop in 1951, gradually grew into a sewing machines manufacturing unit in 1957. It is now known as "Panesar Mechanical Works" and sells its products under the trade mark "Shan",. At first, the Government did not give much attention to this industry. It was only in 1964 that the Government of India banned the import of sewing machines and their parts. This gave a fillip to the domestic sewing machines and spare-parts industry. Now all spare parts are manufactured within the country mostly at Ludhiana.

Apart from three main units mentioned above, there are 15 other, sewing machines manufacturing units at Ludhiana. One of them is "Rico Industries" which was established in 1977 and has come up to the level of the three well-established major units in respect of production as well as exports. The remaining 14 units are catering only to the domestic market and are not meeting the foreign demand. In addition to these 18 sewing machines making units, there are 371 other units which are manufacturing only sewing machine parts.

The sewing machine industry of Ludhiana has now come of age and is now producing a wide range of machines in different models, designs and colours to suit the requirements and tastes of different categories of buyers. Some of the popular models manufactured at Ludhiana are domestic, tailor, lock-stitch, link motion etc.

	1972-73					1978-79				
Unit	Production of Sewing Machines Number	Value Rs. lakh	Export of Sewing Machines Number	Value Rs. lakhs	Export as percentage of Production	Production of Sewing Machines Number	Value Rs. lakhs	Exports of Sewing Machines Number	Value Rs. lakhs	Exports as percentage of production
1	2		4		6		8		0	10
1. C.R. Auluck & Sons	28.734	38.75	2,052	2.36	7.1	82,375	123.40	13,729	26.08	16.0
2. Rita Mechanical Works .	13,360	16.70	1,481	2.70	11.0	45,577	84.86	14,071	36.06	30.8
3. Panesar Mechanical Works .	18,827	21.74	2,075	2.35	11.0	19,975	36.45	4,905	16.45	24.5
4. Rico Industries	.	..	..	..		39,300	70.00	21,000	40.00	53.0
TOTAL	62,109	75.68	5,608	7.41		187,227	314.71	53,705	118.59	28%

Production and Exports

C. R. Auluck & Sons was the first unit from Ludhiana to enter the export market in 1959, followed by Rita Mechanical Works in 1962 and Panesar Mechanical Works in 1964. The fourth unit, Rico Industries entered the export market from the very first year of its establishment. These units export to Middle East Countries, Iran, Iraq, Afganistan, the U.S.A., Japan, Brazil and South East Asian countries like Indonesia Malaysia, Singapore, Sri Lanka, Thailand etc. The production-cum-Export position of sewing machines is given in the Table.

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*Post-graduate Department of Economics, S.D. Govt. College, Ludhiana.

The table on previous page reveals the following significant facts.

1. The increase in the production of sewing machines has been three-fold in unit terms and four-fold in value terms over a span of seven years under review.

2. The increase in the exports of sewing machines during the seven-year period has been nearly ten times in unit terms and 16 times in value terms.

3. As percentage of total production of sewing machines, their export rose from 9 per cent in 1972-73 to over 28 per cent in 1978-79. This is indicative of industry's growing export orientation.

4. M/s. Rico Industries has emerged as the largest exporter though it ranks third in the production of sewing machines. In 1978-79 its exports were 53 per cent of production whereas in case of C.R. Auluck and Sons, the oldest unit in Ludhiana, the exports formed only 16 per cent of its production in unit terms.

Starting from a scratch after independence, the Sewing Machine Industry is, now, not only meeting the domestic requirements but is also catering to the demand abroad.

An overall encouraging export performance of this industry can be mainly attributed to various measures undertaken by the Government of India in this connection Some of them are listed below :

1. *Import Replenishment.*—Under this scheme the licence is issued in the name of manufacturer or nominated manufacturer engaged in production for export. Sub-group of sewing machines for this purpose is A-164 and import replenishment is @ 10 per cent of F.O.B. value of the product-exported.

2. *Cash Assistance.*—Under this scheme, the joint Chief Controller of Imports and Exports, New Delhi, grants cash assistance @ 15 per cent of F.O.B. value of machines exported, to those registered exporters who have applied for this assistance.

3. Duty Draw Bank.—This scheme involves the rebate of duty chargeable on any imported material used in manufacture of goods exported from India. The drawback claims are required to be supported by copy of shipping bill and other documents duly signed by the proper customs officers. At present the drawback rate for sewing machines and parts is 2.5 per cent of F.O.B. value. Besides, exporters also get railway freight concessions going up to 50 per cent to cover up the disadvantages of high inland transport costs for exporters from Ludhiana. But sewing machine exporters mostly prefer road transportation for carrying their product as it saves time. It takes only about 84 hours to transport the machines to Bombay and Calcutta ports by road whereas in rail transport, the goods might take a week or even 10 days to reach the port. Moreover, Engineering Export Promotion Council, founded in 1955 has also played a laudable role in this field. It has established offices in many foreign countries like Lebanon, the U.S.A., West Germany, the U.K., Kenya, Singapore etc. which send market reports that are quite useful for engineering goods exporters in many ways.

Apart from the assistance provided by the Central Government, the Punjab Government is also providing certain incentives to sewing machines units in their capacity as exporters such as 10 to 20 per cent relief in power cut, priority for supply of raw materials and allocation of loans by the various Punjab Industrial Corporations like Punjab Financial Corporation, Punjab State Small Industries Corporation etc. and subsidy for the purpose of generating sets in the event of power shortage.

Problems Facing the Industry

However, this industry in Ludhiana is facing certain problems which deserve necessary attention and prompt measures for their rectification.

1. The Industry is experiencing great difficulty in securing a regular supply of essential inputs like steel, pig iron, coal etc. The government agencies like Joint Plant Committee (J.P.C.) and Punjab State Small Industries Corporation (PSSIC) hardly meet 30 to 40 per cent of the total requirements of this industry for steel and pig iron. The prices of these inputs in the open market are almost double the prices charged by the JPC and the PSSIC. Moreover in case of these agencies, the delivery period is from 1 to 2 years which is too long. This problem can be solved by increasing the availability of both the inputs from these agencies. Government should allocate steel and pig iron to state not on population basis but according to the need of the industry. The delivery period should be reduced from 2 years to 6 months.

2. Ludhiana sewing machine exporters have to incur high inland transportation costs for carrying their products to the ports. They have also to maintain special establishments in port towns to ensure the safe shipment of their product which puts additional financial burden on them. Moreover, they are also bothered by high port charges incurred for keeping their products at the ports pending shipment of the consignment.

Much of the botheration and expenses can be avoided if Delhi is declared a 'Dry Port' where the exporters from Northern Region can submit their products and shift the responsibility of their shipment to government officials. Unfortunately the government has not taken any decision so far though this issue has been hanging fire since several years.

Ludhiana sewing machine industry has made good progress in the past and has bright prospects, if the problems facing it are earnestly and thoughfully tackled □

BOOKS

A Study of Munda Tribe

The Changing Munda by Sachchidananda, Concept Publishing Company, New Delhi, 1979, Rs. 100.

PROF. SACHCHIDANANDA, who is the Director of the A. N. Sinha Institute of Social Studies, Patna, is one of the eminent Professors of Sociology and Anthropology. His present work is a latest contribution to the scientific and analytical study of the Munda tribe in Ranchi District of Bihar. As the author has himself acknowledged, some work has already been done to study this well-known tribe of Eastern India. the best of which was by Sarat Chandra Roy. However. much water has flown since the time Sarat Chandra Roy wrote on the Munda about 65 years ago. The author has taken pains to make an indepth study of the Munda tribe from all aspects of life. He had the distinct advantage of working among the same tribe for more than two decades.

Prof. Sachchidananda's book studies the Munda ecosystem and gives descriptive details about the geographical area, flora and fauna, minerals, climate and the behaviour of non-Munda communities who live among the Munda tribe in the same villages. An interesting point made in the study can be found in Chapters 9 to 11 dealing with traditional political organisation, socio-political movements and the development of modern political consciousness and the growth of the Jharkhand Party. This book makes a revealing study about the composition, powers and functions of the Panchayat system and the way a Parha Raja is elected for each village. One can very easily locate the genesis of the Jharkhand Movement, Kol Insurrection (pages 218—220) Sardari Larai (pages 222—232) and the Bisra Movement Housing in Chhota Nagpur in the years 1895 to 1900.

The study also covers the Munda belief in super natural powers, nature guards, magic and other ritual functionaries. The author has ellaborately explained all these in minute details in Chater 12. of his book. He has also highlighted the impact of education, economic growth and the poliical development on the Munda tribe. His views about all these changing factors can be studied in nutshell in his last charter of the book which is perhaps the crux of his thesis.

Prof. Sachchidananda has rendered a great service to the field of anthropology and sociology by bringing out this brilliant research study in the Munda tribe.

Rashmi Khorana

Ramos of Arunachal

The Ramos of Arunachal by M. M. Dhasmana, Concept Publishing Company, New Delhi, Pages 298 Price Rs. 80.

ALTHOUGH STUDIED empirically, by a political scientist, the contribution is an ethnographic account of the little known tribe, the Ramos of Arunachal Pradesh, whose exact population is not known. The Ramos have their own way of life, values and norms, organisations and institutions, beliefs and practices, and style of life. They practice shifting cultivation and depend upon forest as their means of livelihood.

In its eleven chapters, the book presents the total way of life of the Ramos including their habitation, housing pattern, ornaments, foods and drinks, marriage, family, economic and political systems, and religious beliefs and practices. The book also contains glossary of local terms, bibliography, genealogical charts, and index. In the preface, the author has brought out the importance of the anthropological method and approach to the understanding of a traditional community which he followed in the study of the Ramos. The references cited are detailed at the end of each chapter.

The author, though in a limited way, has also tried to study the changes that are taking place as a result of cultural contact situation and has remarked that, the administration is fully alive to the situation and have safeguarded the Ramos from the exploitation of the other fully organised communities and outsiders.

The book is a definite addition to the anthropological literature and should be found useful by the students of society and culture as also those engaged in tribal development administration.

B. N. Sahay

Politics in Rural India

Politics and Society in Rural India by Dr. S. N. Mishra; Published by Inter-Indra Publications, Delhi, Pages 184, Price Rs. 50.

CONFLICTING VIEWS are expressed about the working of panchayati raj in the country and whether it has heralded real democracy at the grass root level. The author has made a thorough field study of the problem in respect of one village— Darauli in Siwan District of Bihar. Even thoug he rightly says no panchayat can be perfectly representative of the entire country or for that matter even of a State, the scene that prevails in Darauli is a fair reflection of what it is like elsewhere in the countryside. Reading through the absorbing dissertation, one sees clearly the awakening of a new consciousness among the long suffering backward classes brought about by adult franchise but they have to cover a long and arduous path before they can attain effective influence and status matching that of the powerful land lords.

In a well documented study the author has dealt with the relationship of the police with the panchayati raj institutions, the emergence of new social conflicts in villages and the forces that influence the elections. The police, he feels, is deeply involved in local politics. While the local politicians exercise a hold over the police, the people in general continue to suffer maltreatment in the process of detection, prosecution and punishment of crimes. Panchayati raj has brought about an unfortunate fall in administrative standards and probity.

The dissertation examines in detail the role of caste. It points out that while the caste system shows signs of weakening, it is still vigorous. New conflicts have surfaced and there is a complete sense of rivalry between the forward and lower castes in day to day affairs.

The author analyses the social changes that are coming about in villages as a result of urban influences and the emergence of a new rural elite. It is a picture of the country on the march, not necessarily without travail and suffering. It is a picture with which the people in hundreds and thousands of villages are all too familiar.

Mehar Singh

Student-Teacher Behaviour

Teacher Education in India by K. K. Vasishtha, Published by Concept Publishing Company, H-13, Bali Nagar, New Delhi-110015. First published 1979. Pages 259. Price Rs. 54.

THIS STUDY usefully attempts to evolve an explanatory framework based on the experimental findings to deal with the problem of student-teacher behaviour at secondary level. One hundred twenty student-teachers formed the core of the experiment. The Flanders technique of erbal interaction was used in the investigation. The major thrust of this study lies in highlighting the need for more and more awareness among the young teachers about their class room behaviour.

The author rightly observes that a competent teacher is one who possesses a large repertory of strategies and tactics which he can use at will vis-a-vis his pupil in the class room. He must acquire an awareness of and control over his own behaviour, which is a necessary pre-requisite to teacher competence. Becoming a fully competent teacher is a lifelong process rather than a point to be reached.

The author has brought out a well-researched book focusing on the crucial problem in education. The major stance is on the communicative competence of the teacher in the class but no emphasis has been given by the author on the attainment of the knowledge itself. With poor knowledge of the subject taught, a teacher would remain a poor teacher in spite of the ability to communicate. The book has a useful bibliography.

Navin Chandra Joshi

A Significant Phase

The Collected Works of Mahatma Gandhi Vol : LXXIX (January 1—April 24, 1945) Vol : LXXX (April 25—July 16, 1945) Publications Division, New Delhi, Pages 464 and 479, Price Rs. 9 each.

IN THE REAL SENSE of an everlasting tribute to the Father of the Nation, the series, under Collected Works of Mahatma Gandhi have happily reached the high mark of their reckoning and deserve to be hailed as a worthy gift to the present generation, not to speak of their going down as a historic mine of information to the posterity to afford it a treasure-trove of surprises out of the post-partition archives of a free nation as and when the Gandhian cult in its multifaceted connotations becomes the subject of research for the scholars of social sciences nd humanities.

The two volumes cover a small period of about six and a half months but refer to a very significant phase of India's struggle for independence—a veritably turning point marked by the approaching end of World War II, release of national leaders arrested in 1942, failure of the Simla Conference and the eventual threadbare exposure of the myth about the British Government's anxiety to arrive at some kind of settlement with nationalist India.

The undercurrent of history which runs through the myriads of letters written by Mahatma Gandhi, weaves together the various visages of *national life* into a wholesome pattern depicting its social political and economic goings on Mahatma Gandhi's stalwart of his times, ensures the consistent readability of the volumes.

Each volume, for its clear print, stout and dependable get-up. is worth more than its price and shall come up to the level of proud possession of readers that be.

R. Prakash

Management Accountancy

Principles of Management Accountancy by S. N. Maheswari; Sultan Chand & Sons, New Delhi, Pages 536; Price Rs. 30.

THE LAST THREE DECADES have seen a revolutionary development in the field of accountancy. Management Accounting is one phase of this development and it is considered an essential tool of management. The book under review provides a comprehensive coverage to the Management Accounting courses of various universities and professional bodies.

This book is of immense help not only to the students but also to planners, decision makers and controllers of modern, commercial and industrial enterprises.

S. S. Rao

Industrial Relations

Industrial Relations System in India—A Study of Vital Issues by Sahab Dayal : Stering Publishers Pvt. Ltd., New Delhi, Pages 268, Price Rs. 80.

THIS IS MORE THAN a delineation of industrial relations in India. The book discusses concepts, institutions, legislation and suggests policy and action. Scholarly analyses based on research and ample documentation make it a useful guide to planners, economists trade unionists and the like. What the author highlights is the need for a more clearly defined wage-price policy and its vigorous implementation.

Concepts like minimum wage, living wage, fair wage, bonus etc. are analysed lucidly. It is gratifying that the author, far from insulating himsef with theories and generalisations, makes practical suggestions, no matter how controversial. For example, he says : "In an economy where manpower is substantially unemployed or underemployed it is far more desirable to create or maintain high levels of employment even at low wages than to precipitate voluntary unemployment for the sake of a high minimum wage." Dr. Dayal is critical of the Government's ambivalence in talking about collective bargaining and compulsory adjudication in the same breath and in being noncommital as to whether bonus should be profit-productivity linked or treated as deferred wages. He suggests that the Dearness Allowance element in the pay packet of industrial workers should not be allowed to dominate to overshadow the basic wage. He would have House Rent Allowance, City Compensatory Allowance etc. merged in the basic wage so that basic wage becomes the main component ; the only other component should be the cost of living element. He would also permit of regional variations in basic wage, it being linked to regional and not national cost of living indices. For a man who studied and taught in the West, Dr. Dayal has an extra-ordinary perception of the Indian reality. He cautions against the transplantation of concepts evolved in a different context, "Poor economics are significantly different from the indusrialised economies of the West. In less developed economies, these differences are represented by a state of surplus labour, a predominance of self employment, a very large agricultural sector, low per capita incomes, lower capital resources per worker and frequently low savings-national income ratios. It would be unrealistic, therefore to import into such economies a prescription designed to cure the ills of the industrialised countries."

Dr. Dayal does well to relate his analysis to our broad national objectives of growth and justice. Often it would be difficult to reconcile the requirements of both. For example, a transfer of funds from the rich to the poor in the interest of social justice may mean money going to people with a low propensity to save and a high propensity to consume. This defeats the developmental purpose of capital formation through savings for investment. The author however, concedes that a wage policy for India has to have a social as well as an economic aspect. His complaint is against political considerations taking precedence over economic considerations.

Though the author deals with specific aspects of a field—that of industrial relations, the condition of workers that emerges in the course of the discussion is revealing enough to make us ashamed of our patent failure in achieving social objectives. Look at the following statistics :

Real earnings of workers earning less than Rs. 200 p.m. were less in 1964 than in 1952. Real earnings of those earning less than Rs. 400 were lower in 1970s than in 1960s. And these were planning years when both worker productivity and company profits improved. The share of the lowest 10 per cent of the population in consumption is 3 per cent on an average whereas that of the top 10 per cent is 25 per cent. In spite of the minimum wages Act, the Wage Boards etc., wages hae always been chasing prices and increase in cost of living has never been completely offset by DA. Sad comment, indeed, on an economy that has been subjected to planning for three decades ! These are some of the contents of Dr. Dayal's book that should interest even the lay reader. Facts and figures that remind one of the prophetic lines of Oliver Goldsmith :

> Ill fares the land to hastening ills a prey
> where wealth accumulates and men decay.

C. Mathew Chandy

Chambal Valley

The Physiography of the Lower Chambal Valley. Concept Publishing Company, New Delhi. 1979. Pages 243, Price Rs. 60.

THE RAVINES of the Chambal Valley have been proverbialy the abode of marauders and dacoits. No worthwhile and profitable study of the region has so far been undertaken to develop the land and thus make the inhabitants into civilised citizens.

Mr. Sharma, a young and enterprising geographer has now made a detailed study of the lower chambal valley to fill in this gap. He does not suggest any solution as to how the Chambal ravines were originally formed.

This is perhaps the first systematic attempt and study ever made into the geo-morphology of this region and as such the author deserves congratulations. He has also made certain physiographic studies relating to the agricultural development of the region.

The book is a useful pointer for further intensive study of the behaviour of the Chambal river, the ravines and land pattern changes and the fertility of the soil. These will have to be followed up by further researches on how what crops can be grown in the area. Perhaps the future will unfold many modifications in this area.

E. P. Radhakrishnan

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All the existing SC/ST Colonies as on March 31, 1979 were electrified in TN

Rural Electrification in Tamil Nadu

TAMIL NADU ranks first in energising the largest number of pumpsets in India. It accounts for more than 22 per cent of the total power-driven pumpsets in the country. A target of 30,000 pumpsets per annum has been fixed for the period 1980-81 to 1984-85 with a budget outlay of Rs. 21.5 crores.

The Rural Electrification Corporation, have so far sanctioned 212 schemes from 1970-71 to 1979-80 for total loan assistance of Rs. 56.58 crores to the Tamil Nadu Electricity Board of which the Board has so far drawn Rs. 36.04 crores as on March 31, 1980 With the above financial assistance The Board has so far energised 68996 agricultural services, 5 H.T. and 5303 L.T. industries, 100756 domestic and commercial services and 25055 street lights services. The Board has so far commissioned 32 sub-stations in Tamil Nadu and one existing sub-station upgraded under the REC.

All the existing SC|ST Colonies as on March 31, 1979 were electrified and of the newly sprung-up colonies, about 172 have also been electrified as on February 1, 1981.

Regarding village electrification, all the 154 villages and most of the 390 hamlets, yet to be electrified, are in hilly tribal areas. They will be electrified in a phased manner under Integrated Tribal Development Programme with Government subsidy and the REC. loan.

TN accounts for 22 per cent of the total power driven pumpsets in India

Waste water Treatment Plant in Bombay

A POLLUTION prevention plant named 'Bayer Tower Biology' has been commissioned recently in Bombay at a cost of Rs. 1.5 crores. This is the most modern and sophisticated plant set up for the first time in Asia. The total waste water containing very complex mixture of materials used in the three plants set up by Bayer (India) Limited (BIL) at Thane, Bomaby is being treated at the new pollution prevention plant. The three plants are manufacturing pharmaceuticals, rubber chemicals and pesticides. To treat the complex waste water, the research workers in the BIL studied the biological treatment and cultivated suitable microflora which can remove amines, phenols, solvents, alcohols and also phosphorous users from the waste water and achieved the limits put by Maharashtra Prevention of Water Pollution Board on Bayer (India) Limited.

After developing this special culture in the laboratory, they tested it on a pilot scale in different units like oxidation pond, conventional biological treatment plant and tower biology. After concluding from these studies that Tower Biology is the best method, they developed the complete treatment and designed the plant.

The heart of this whole process is a very well equipped and spacious chemical house where well-trained chemists and microbiologists keep a round-the-clock-watch, analyse the incoming and outgoing effluent with modern instruments like gas liquid chromatograph, spectrophotometers, total organic carbon meter and unique robra test apparatus. The whole process is also controlled from this chemical house through the control room and the most modern instrumentation and remote controls are used in the process.

(*German News*)

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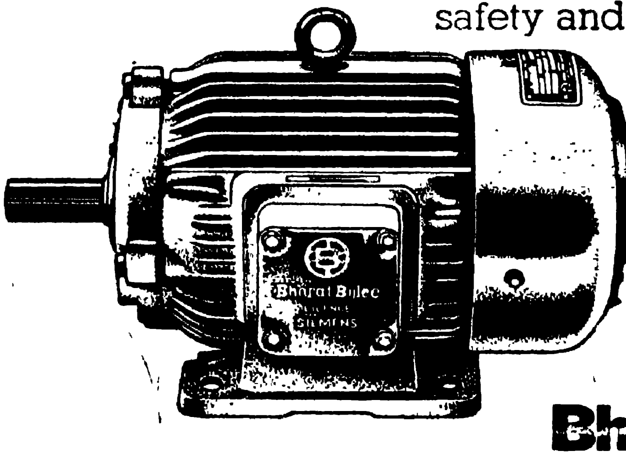

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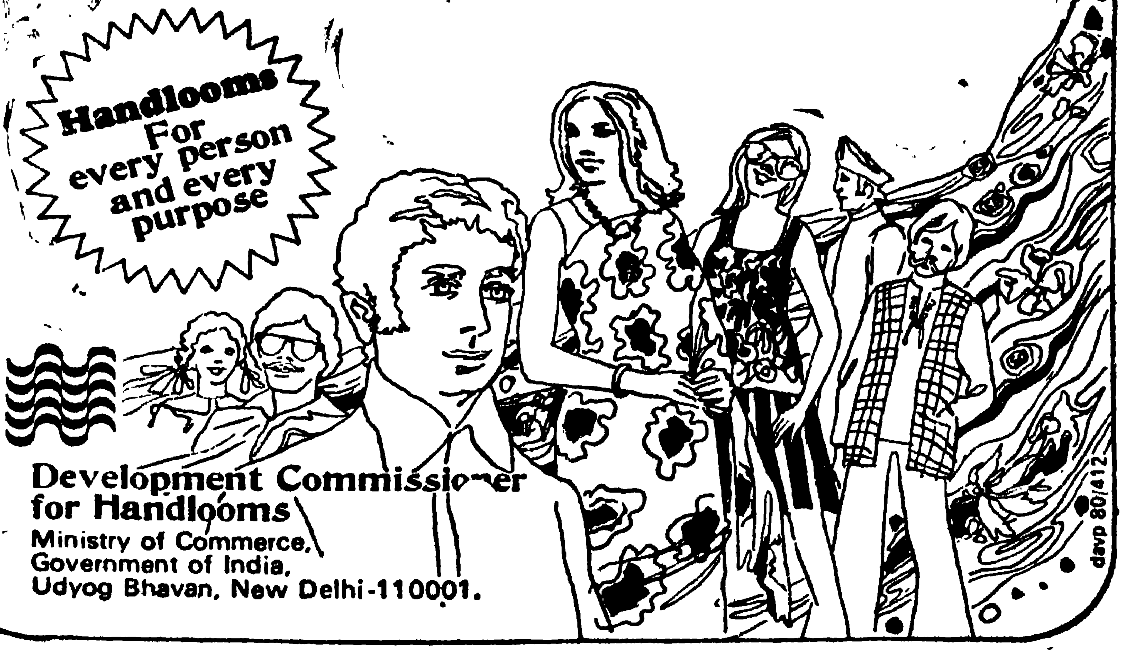
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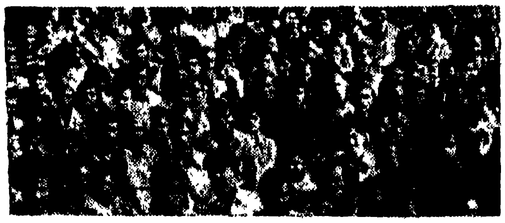

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Editorial

EXIM Policies

THE YEAR 1980-81 has been a year of recovery both for the economy of the country and for its exports. However, the rising trend in imports has also continued in that year. The value of imports, which was Rs. 6814 crores in 1978-79, increased to Rs. 8,795 crores in 1979-80 and was expected to be Rs. 11,300 crores in 1980-81. This rise, which was mainly due to the sharp increase in the price of imported crude and petroleum products, (87 per cent of total imports), was beyond our control. Of course, the value of our exports also increased-from Rs. 5,726 crores in 1978-79 to Rs. 6,427 crores in 1979-80—but could not obviously rise to the level of our imports, with the result that we are faced with a yawning gap in foreign trade. The growing protectionism and recession in developed countries also adversely affect our export efforts. Further, invisible receipts from abroad have become stagnant and foreign aid prospects are clouded mainly due to the 'Reagonomics' of the U.S.

Viewed against this background, the new export-import policies, which were recently announced by the Union Commerce Minister, are pragmatic and serve the basic economic policies and the planned development of the country. The export policy has reduced the number of items subject to control and placed more items on the list of Open General Licence. It also opens up avenues for the export of some new items manufactured in this country. It is felt in some quarters that assistance to the exports of items like textiles is not enough. But due to shortage of resources it may not be possible to increase cash aid and subsidies. Anyhow, this question has to be dealt with on a long-term basis in the light of the expert committee report which is already with the Government.

Expanding the exports is one of the main objectives of the import policy also. Its other important aim is to strengthen the production base. The new policy removes 165 not-so-essential items from the OGL and adds 63 items of raw materials and equipment to that list. 42 more products have been added to the banned list. Such restrictions are intended to reduce the bill of non-essential imports and to encourage indigenous production. The saving in the import bill is just about Rs. 100 crores. The policy, has not made more cuts because of the need to allow items essential for economic development. The new step to provide liberal replenishment benefits to "trading houses" with excellent export performance has been widely welcomed as an imaginative measure. The additional facilities to small scale sector are also valuable. The canalisation of imports of more items like edible oils through public sector agencies will help in preventing private trade's malpractices.

Apart from mineral oil, we are constrained to import capital goods etc., for our economic development and also essential consumer items like edible oils which are in short supply. In order to meet the cost of these imports we have no other go but to export more. This has nothing to do with polemical questions like 'export-led growth'. We have to abandon the idea of 'exporting the surplus' and practise vigorously the new concept of 'producing for export'. ☐

Window on the World

Economic Development in Tanzania

Navin Chandra Joshi*

ON April 27, 1964 Tanganyika and Zanzibar combined to form the country later (October 29, 1964) named as the United Republic of Tanzania—a Commonwealth country. Independence had previously been achieved by Tanganyika on December 9, 1961 and by Zanzibar on December 9, 1963. Tanzania is bounded by Kenya in the north-east, Lake Victoria and Uganda in the north, Rwanda and Burudi in the north-west. Lake Tanganyika in the north, Zambia and Malai in south-west and Mozambique in the south. The population of the country in 1975 was estimated at 15 million with an average density of 34·8 per square mile in the mainland and 347·1 per square mile in Zanzibar Island. Over half the population comprises Indians, Europeans and Arabs. The average per capita income is around US $ 180 per annum.

The country has a land area of 3,41,150 square miles. A large part of the area in the centre of the country is arid and bushy and a considerable part of the population and economic activity are concentrated in areas on the periphery. Development problems are extremely heterogenous, differing widely from one area to another. The overall density is low—around 27 per square mile. The African population is growing at the rate of 1.7 per cent. Peasant cultivators and nomadic or semi-nomadic herdsmen form by far the largest part of the population. About 6% of the total area is covered by water, i.e. parts of Lake Victoria and Tanganyika on the north and the west. Irrigation is practised on a limited scale. The eventual possibilities of irrigation development are somewhat limited by the restricted amount of water available over much of the territory. Irrigation and flood control together can make available for cultivation less than a further 2 per cent of the total area of the country or about 4 million acres. Flood hazards and arid conditions alternate with the seasons.

Sporadic Development

Upto the end of the Second World War, economic development was somewhat sporadic. In the thirty years preceding the outbreak of the First World War, the Germans devoted much money and energy to the development of plantation agriculture. After the War, in January 1920 a League of Nations mandate was given to the United Kingdom to administer the territory. In 1946 Tanganyika became a U. N. Trust Territory under British administration. The Territory benefited from the British post-war colonial development policy. From 1948 to 1958-59 it received over £ 10 million as grants from U.K. and other foreign countries. The government also devoted attention to the promotion of economic development mainly through the inflow of foreign capital. In recent decades Tanzania has made substantial progress to make it possible for it to finance development projects from its own resources.

Exports

The rate of growth of exports gives a fair indication of the rate of growth of the economy as a whole. Exports take about a quarter of all the goods and services produced in Tanzania and generate about 40 per cent of money incomes. Agriculture and livestock products contribute about 80 per cent of export earnings against 13 per cent for minerals. Industrial development has been proceeding rapidly in recent years and may continue to expand on a greater pace. The development of the economy of Tanzania has been mainly dependent upon the growth of exports of primary products. Among major exports, coffee presents a special case because of an international agreement limiting exports. Only in the case of sisal does the output of the country constitute an important percentage of world supply. In other products, Tanzania's share in world market is negligible. The main development effort has ,therefore, been concentrated on African agricultural estates owned and managed by Europeans and Indians who are at present the major producers of export crops, producing virtually all the sisal and tea, the greater part of tobacco, wheat, pyrethrum and seed beans and peas, and some part of coffee.

Today the major export crops are cotton, coffee and sisal. Diamonds, the only important non-agricultural export item, rank fourth among the products exported. Roughly half of the agricultural output comes from subsistence cultivators and herdsmen. The principal markets in foreign trade are the sterling area countries. U.K. provides the largest individual export market. India purchases mainly cotton and cashewnuts. Imports are in the form of machinery and transport equipment, manufactured products including textiles, mineral fuels, food, chemicals, etc. The largest imports are from the United Kingdom. For many years, goods have moved freely between Kenya and Uganda due to the existence of East African Common Market.

Agrarian Economy

Tanzania's economy is based on agriculture which contributes more than half of the Gross Domestic Prouct, four-fifths of foreign exchange and four-fifths of employment. From a low coastal strip the mainland territory rises gradually to a central plateau with an average elevation of about 4,000 feet. Much of the rain comes in short, intense storms and runs off without benefiting crops. Rainfall is also unreliable, varying greatly from year to year. About 10 per cent of the land is cultivated with various crops.

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A number of factors militate against the development of Tanzanian agriculture. They are primitive methods of cultivation, lack of managerial ability, inadequate equipment, lack of capital, limited influence of incentives etc. Production of sisal, an important export item, has been declining since 1967. The Tanganyika Sisal Corporation has embarked on a diversification programme by introducing new crops. Crops already planned for intensive production are cardamom, beans, cashew nuts, citrus, cocoa, coconuts, cotton, maize and timber. Cattle ranching, dairying and twine spinning have also been attempted. The greater part of the world's supplies of cloves comes from Zanzibar. About 80,000 acres of land is devoted to the cultivation of cloves. Coconut industry occupies an important position. The main food crops are rice, bananas, cassava, pulses, maize and sorghum. In fisheries, sardines and tuna are the important items of catch for export.

Stagnant Economy

The factors causing concern on the Tanzanian economic scene are the exports stagnating at about £ 235 million a year and imports rising to £ 555 million of which £ 137 million a year are spent on oil imports. Today the country's economy is heavily dependent on foreign assistance which is of the order of £ 300 million a year. Its foreign debts are quite staggering with the overdue amount of £ 100 million and unpaid letters of credit amounting to over £ 80 million. It is significant to note that over the years Tanzania has been having a virtually stagnant economy. The per capita income level is almost the same as in India or in Pakistan. Production of cash crops is very generally looked upon as an activity occupying second position to food production. The rate of capital formation appears to be rather high for a country of very low per capita income. It was 17 per cent of GDP in 1958 and now it is around 20 per cent. The explanation for this is that the basic demand for food is satisfied in the subsistence sector and as a consequence, a higher proportion of monetary income can be devoted to capital formation. Further, a part of the gross investment was financed by grants and loans from the outside world rather than by domestic savings. About one third of the total domestic capital formation is made by public sector and the remaining two-thirds by private sector.

Financial Stringency

Tanzania's present development problem is one of financial stringency rather than that of limited absorptive capacity. Development could greatly benefit from/ continued and expanded inflow of grants and technical assistance and from availablity of loans on soft terms. Dr. Julius K. Nyerere, who has led the country since independence in 1961, is a very popular President of the Republic. It is due to his efforts that this poor and strategically insignificant country has attained a prominent role in world affairs. His writings, particularly the 1967 Arusha Declaration, have laid the foundation for the overall domestic policies of the country. According to him, the key to building a just and socialist society lies in the equitable distribution of goods, services and wealth.

Achievements

It is quite true that Tanzania has made quite significant progress is providing social services, particularly in the rural areas where 80 per cent of the population lives. Of the 8,320 villages in the country, about 6,000 have village cooperative societies, around 3,000 have dispensaries and more than 7,500 have primary schools. The country's health care system is the best in the whole of Africa. Life expectancy has now risen to 51 years and infant mortality has been reduced to 140 per 1,000. There is free universal primary education on non-racial lines.

A remarkable achievement has been in the direction of significant reduction in the income gaps of the people. The income inequality has been reduced from 50 to 1 existing at the time of the independence of the country to 7 to 1 today. Tanzanian economy has been having a higher rate of monetisation through production for the market. The world-wide inflation has been making its impact in a larger measure and as such, the real incomes are falling. As far as industrialisation is concerned, the manufacturing sector is still in an early stage of development though it has been growing rapidly in recent years. Manufacturing output represents processed foods (e.g. canned meat for export, vegetable oil products, wheat flour etc.) beer and other products. The Government of Tanzania has been vigorously implementing its promotion of industrialisation by participating directly through its statutory corporations and by encouraging private investors through the use of fiscal incentives. The Government gives priority to the processing industries which would increase the export, value of Tanzania's raw materials and maximise foreign exchange earnings. On the other hand, import-substitution industries are accorded a lower degree of priority.

The Government has enacted a series of investment incentive legislations for the protection of foreign investment. Incentives available to private investors are in the form of tax relief allowances but no tax holidays are granted. There is also exemption from import duty for most industrial equipment, chemicals and raw materials and a protective customs tariff on a wide range of products.

Planned Development

The planning process in the country can be said to have started early in 1960s. The First Three-Year Development Plan (1961-62 to 1963-64) was launched with the objective of laying the foundation for future economic growth. It had a total outlay of Tanzanian Shillings 480 million. Then Five Year Plans were launched for 1964-69 and 1969-74. The current Five Year Plan commenced in 1976 envisages small but actively growing industrial factories to manufacture small parts with the object of improving foreign exchange earnings. It is felt that Tanzania is far too dependent on foreign aid from Western Countries and Western-dominated international agencies. The nationalisation of certain industries has not checked capitalist penetration of her economy and the 'Ujamaa' programme has been subverted with the promotion of self-reliant socialist villages being replaced by a World Bank supported effort to expand output of export crops, thus tying Tanzania still further into the network of international trade.

The reasons for heavy dependence on foreign aid are the very substantial series of blows to the Tanzanian economy in recent decades and they were beyond the control of the Government. Apart from that the soaring oil prices, the adverse drought of 1974-76, the disastrously heavy rains of 1979 and the failure of rains in early 1980 have been the recent phenomena serving as casual factors for seeking a degree of foreign aid.

Surely, the Tanzanian economy is under very severe strain. There is the nearly overwhelming impact of the exogenous factors and great and damaging inefficiencies in the civil service. There is a growing corruption that undermines loyalty and generates cynicism. There is need to consider how productivity can be increased in the non-agricultural sectors and how management can be made more efficient in ways that will not preclude continuing progress.☐

Photorespiration Key to Better Crops

Dr. M. K. Garrett*

PHOTOSYNTHESIS is the process by which plants use the energy of sunlight to convert inorganic carbon dioxide to organic compounds. It also produces the oxygen which we breathe, but we now know that this same oxygen has profoundly deleterious effects upon the yield of most crop plants by inducing a wasteful respiratory process called photorespiration, and that reducing photo-respiration would lead to substantial improvements in the yield.

Most crop plants fix carbon by the cyclic pathway elucidated by the Novel Laureate, Melvin Calvin, at Berkeley, California. Within this cycle of reactions a molecule of carbon dioxide is added to the 5-carbon sugar ribulosebisphosphate (RuBP) molecule to form two molecules of the 3-carbon compound phosphoglyceric acid. Plants having this mechanism are known as C3 plants and include agricultural species.

In a normal atmosphere, C3 plants fix carbon dioxide and produce phosphoglycolate simultaneously. Because glycolate is the fuel for photorespiration, this means that photosynthesis and photorespiration take place simultaneously, too, the former process contributing to yield and the latter diminishing it. In fact photorespiration may burnoff up to half the carbon which would otherwise contribute to plant growth. How then, might we control this process ?

A great deal, therefore, depends upon how far we can genetically control photorespiration. What we need is control at the branch point between the photosynthetic and photorespiratory pathways, and branch pointenzymes can be thought of as traffic lights regulating the flow of chemical traffic along diverging pathways of the metabolism.

The branch point enzyme between photosynthesis and photorespiration is called RuBP carbodylose/oxygenase, to describe the dual chemical part it plays. Because this enzyme may make up some 50 per cent of the soluble protein in plant leaves, it is the most abundant protein in the world, but a lot is still unknown about how its catalytic effect is controlled in the plant. In 1974, scientists at the US Department of Agriculture Soybean Laboratory in Illinois discovered that the higher the temperature, the less the affinity this enzyme had for carbon dioxide but not for oxygen. The discovery was a key one because it showed for the first time that this controlling enzyme could be differentially regulated, and that it might be possible to do so by genetic instead of environmental means.

In August, 1978 the first evidence for such genetic control in both commercial and genetically engineered cultivars of ryegrass was reported. It is only fair to say that the evidence is still the subject of some controversy, but it is now supported by a substantial body of photorespiration. Furthermore, the RuBP Carbodyploid ryegrasses, which have twice the number of chromosomes of normal diploid lines, had lower rates of photorespiration. Furthermore, the RuBP Carbodylase-oxygenase enzyme in the tetraploid cultivars had a greater apparent affinity for carbon dioxide, while its affinity for oxygen did not differ, significantly from that of the diploid cultivars. This clearly suggested genetic control of photorespiration at the branch point between photosynthesis and photorespiration.

All this means that tetraploid cultivars of ryegrass have a more efficient carbon economy than the diploid cultivars have.

It could be suggested, therefore, that the photosynthetic superiority of the tetraploid ryegrass could be exploited in the field by more frequent harvesting, though the validity and practicability of this idea has to be evaluated critically under a wide range of conditions.

Improving the efficiency of photosynthesis is fundamental to improving crop plants. We now know, for example, that nitrogen fixation in plants such as soybean is governed by photosynthesis. Many activities in plant roots are governed by the activity of the leaves. It is to be expected, therefore, that improving photosynthetic efficiency will be a prerequisite for improving the efficiency of mineral nutrition in many crop plants.

The hope must be that through these efforts the productivity of C3 crop plants will one day match that of C4 plants such as maize, sugarcane and sorghum are amongst plants which lack photorespiration and are amongst the world's most productive agricultural species.

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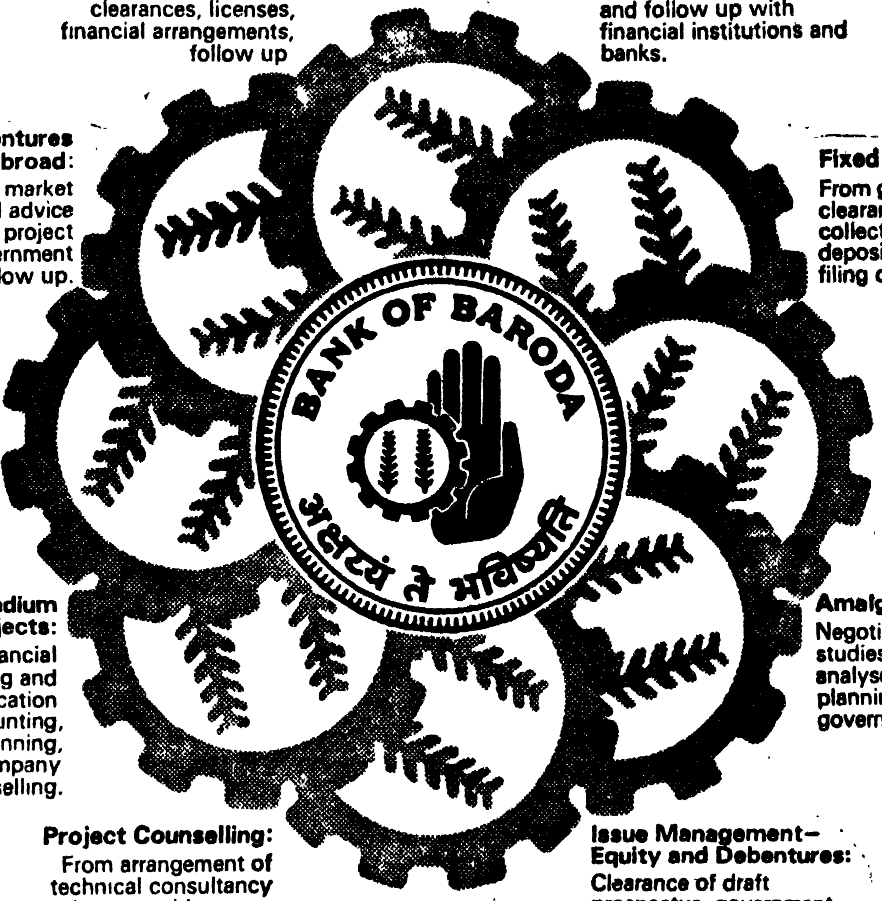

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SDR

A Source of International Liquidity

Haranath Bhattacharyya*

Until 1970, the main components of international liquidity were foreign exchange reserves, gold and drawing rights on the Internation Monetary Fund (IMF). Growth of foreign exchange reserves like U.S. dollars and British pounds depends upon the balance of payments deficits of these countries and are, therefore, uncertain and erratic. Gold reserves have not increased to any significant extent in recent years. Hence a need was felt to augment the supply of international liquidity during the early sixties.

Genesis of SDRs

At the Annual Meeting of the IMF in September, 1963, which was held in Washington, two studies on "the outlook for the functioning of the international monetary system" were commissioned. One of these studies was to be made by the IMF and the other by the Group of Ten (ten leading industrial countries—U.S.A., U.K., West Germany, Japan, France, Canada, Italy, the Netherlands, Belgium and Sweden).

After a number of joint meetings of the Executive Directors of the IMF and the Deputies of the Group of Ten, a draft outline on the creation of a new reserve assets was produced. At the Rio de Janeiro Annual meeting of the IMF held in 1967, a resolution adopting the agreed outline was unanimously passed and detailed proposals for the introduction of Special Drawing Rights on the IMF (SDRs) were approved by the Board of Governors of the IMF in April 1968. After necessary amendments of the Articles of Agreement of the IMF, the Special Drawing Account came into being on August 6, 1969.

A Breakthrough

Creation of SDRs represents a genuine breakthrough in monetary thinking because it liquidates the fiction of the central debtor of money in circulation. In the SDR scheme, there are no liabilities of the issuing agency. Moreover, SDRs bring about an increase in the world's monetary reserves without any deposit of gold or currency by the participating countries. SDRs are solely based on their acceptability by participating countries in exchange for various convertible national currencies. Drawings from the General Account of the IMF have to be repaid, but SDRs, once allocated, continue permanently in existence.

Mode of Allocation

The time and amounts of allocations of SDRs are based on the recommendations of the Managing Director of the IMF and are ultimately to be approved by the Board of Governors voting with an eighty-five per cent majority. Allocations of SDRs are made in proportion to the quotas of participating countries.

The first allocation of SDRs was made on January 1, 1970. Total allocation to participating countries was SDR 3.4 billion and India's share was SDR 126 million. The second and the third allocations were made on January 1, 1971 and January 1, 1972 respectively. Each allocation was of about SDR 3 billion. India received SDR 100 million in each year. Thus a total amount of SDR 9.3 billion was created and allocated to 112 participating countries during 1970-72 and India's total share of these allocations was SDR 326 million.

Valuation of SDR

Originally one SDR was equivalent to the gold content of one pre-1971 U.S. dollar, i.e. 0.888671 grams of fine gold and SDRs had a gold value guarantee. With the advent of generalised floating of major currencies, a new basis for valuation was necessitated and from July 1, 1974 the standard basket technique was adopted under which the value of SDR was made equal to the basket of currencies which contained 40 U.S. cents, 38 W. German pfennings, 4.5 U.K. pence and specified amounts of 13 other currencies. With effect from January 1, 1981, the IMF is using a simplified basket of Five currencies for determining the daily valuation of the SDR. The sum of the values of the following amounts of these five currencies would determine the value of SDR.

U. S. Dollar	.. 0.54
Deutsche marck	.. 0.46
Japanese Yen	..34.00
French franc	.. 0.74
Pound sterling	.. 0.071

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* Head of the Department of Economics, Burdwan Raj College, Burdwan.

It may be mentioned in this connection that these currencies were already in use in determining the interest rate on the SDR. As on January 30, 1981, one SDR was equivalent to U.S. dollars 1.24418 and Indian rupees 10.1161.

Holdings

A participating country earns interest on its holdings of SDRs and pays charges to the Fund at the same rate on its net cumulative allocation. With effect from January 1, 1981, the SDR interest rate has been fixed at 10.875 per cent per annum and the rate of remuneration on member's creditor position has been determined as 9.7875 per cent per annum.

A participating country with a balance of payments need may use SDRs to acquire foreign exchange in a transaction with designation—that is, where currency is provided by another participating country designated by the IMF usually because its balance of payments and reserve position is sufficiently strong. No participant is obliged to hold more than three times its own cumulative allocations of SDRs. Thus if a participant has, over the years, been allocated SDR 100 millions, it must accept another 200 millions of SDRs from participants having balance of payments deficit. However, it may agree to take even more.

As for users originally it was provided that the average net use of a participant's SDRs must not exceed 70 per cent of its average net cumulative allocation during a specified base period (normally five years). A participant which used more than 70 per cent of its average net cumulative allocations during some part of the basic period, had to reconstitute its holdings of SDRs to ensure that its average use of SDRs over the whole period did not exceed the specified proportion.

At the annual meeting of the IMF, in 1967, a resolution adopting the agreed outline was passed and detailed proposals for the introduction of SDRs on the IMF (SDRs) were approved by the Board of Governors in April 1968.

With effect from January 1, 1979, the Executive Board of the IMF had reduced from 30 per cent to 15 per cent the minimum average holdings of SDRs that participants are required to maintain, in relation to the average of their net cumulative allocations during the base period.

Under the Second Amendment of the Articles of Agreement of the IMF, which has become effective from April 1, 1978, participants are free to exchange SDRs for currency in transactions by agreement with other participants. In these cases, no balance of payments need is required and the transactions take place without further authorization by the IMF. Participants may also use SDRs to make payments to the General Resources Account of IMF for repurchases, charges and quota payments.

As a result of the Seventh General Review, quotas of members of IMF have been increased by 50 per cent, from SDR 39,766.5 million to SDR 60,025 million and members were required to pay 25 per cent of the increase in their quotas in SDRs.

The Executive Board of IMF has taken a number of decisions which have widened the possible use of SDRs beyond the uses specifically mentioned in the Articles of Agreement of the IMF. These additional uses of SDRs include swap arrangements under which a member of the Fund may transfer SDRs to another member in exchange for an equivalent amount of currency or another monetary asset, other than gold, with an agreement to reverse the exchange at a specified future date, and at an exchange rate agreed upon by the members. SDRs can also be used in forward operations, loans, as security for the performance of financial obligations, and in donations.

The IMF has the authority to extend the range of official holders beyond its member countries. So far the IMF has designated the World Bank, International Development Association (IDA), Bank for International Settlements and six other financial institutions as "other holders" of SDRs. These "other holders" have the same degree of freedom as the 441 members of the IMF in using SDRs excepting that they cannot receive allocations nor use SDRs in transactions with designation.

Further Allocations

After a gap six years, the IMF recently resumed the allocation of SDRs in accordance with the resolution of the Board of Governors of the IMF which became effective on December 11, 1978. This resolution approved a proposal of the Managing Director to allocate about 4 billion SDRs in each of the three years—1979 1980 and 1981. On January 1, 1979, SDR 4032.7 million was allocated to 137 members. A further amount of SDR 4033.3 million was allocated to 139 members on January 1, 1980. The third and final allocation of SDR 4,042 million was made to 141 members of the IMF on January 1, 1981. The total amount of SDRs allocated since allocations began in 1970 is SDR 21,433 million, which is about 7 per cent of total world reserves other than gold. India was allocated about 119 million SDRs in each of the years 1979 and 1980 and 116.7 million SDRs in 1971. Thus, during 1979-81 India has been allocated about 355 million SDRs. But she had to pay 143 million SDRs as 25 per cent of the increase in her quota as a result of the Seventh General Review of quotas. Thus, the net addition to India's reserves as a result of fresh allocations over the three years period (1979-81) has been 212 million SDRs. It may be mentioned in this connection that as a result of the Seventh General Review of quotas, India's quota in the IMF has been increased from 1145 million SDRs to 1717.5 million SDRs.

SDR Established Unit of Account

Apart from providing international liquidity, the SDR has gained stature as a unit of account. A few countries are specifying the par value of their currencies in SDRs rather than U.S. dollars and the IMF is publishing figures on the scale of its own operations and amounts of international liquidity in terms of SDRs. Currency deposits denominated in SDRs are accepted by the Bank for International Settlements (BIS), and more than thirty commercial banks in financial centres throughout the world.

Since 1970, the year of first allocations, SDRs have been used in a variety of transactions and operations, with transfers amounting to SDR 33,358 million by the end of 1980.

SDRs are allocated in proportion to a country's quota in the IMF. In the assignment of quotas, national income, volume of trade, and reserve holdings of a country carry great weight. But these are indicators of relative prosperity. Naturally, SDRs allocated on the basis of quotas favour richer countries. But it is the developing countries which are in great need of international liquidity. Their exports are unstable, imports are incompressible and they have to service their foreign debts.

The deficits on current accounts of non-oil developing countries widened from $ 56 billion in 1979 to $ 76 billion in 1980. The prospects for 1981 indicate a further deterioration in the current account deficit of these countries to $ 80 billion.

Under these circumstances, the question of linking creation of SDRs with the development aid, or a special allocation of SDRs to non-oil developing countries merit serious consideration. ☐

Rehabilitation of Invalids through Cooperatives

THE co-operative form of economic activity has proved very useful in Poland for the vocational and social rehabilitation of disabled persons. There the invalids' co-operative is a special kind of workers' productive co-operative. It is a voluntary and self-governed association of invalids for carrying out economic activity on the basis of the members' own work. Another aim of the same importance is social and educational activity calculated to meet the needs of the members of the co-operative society.

But invalids' co-operative have set for themselves wider aims than those of ordinary worker's productive co-operatives. They do not limit their activity to providing jobs for their members and improving their social education; they are also concerned with the rehabilitation of their members. The rehabilitation benefits include vocational guidance, re-training for a new job, medical care, social care, organization of working conditions to suit the specific needs of disabled persons ; the very nature of the co-operative makes it necessary to adapt the scope of its aims to the needs of its members. The merging of economic activity with social and educational activity in the same enterprise means that the requirements of economic self-sufficiency are combined with social advantages. And this is, the essence of the particular usefulness of the co-operative form of economic activity for the rehabilitation and employment of disabled persons.

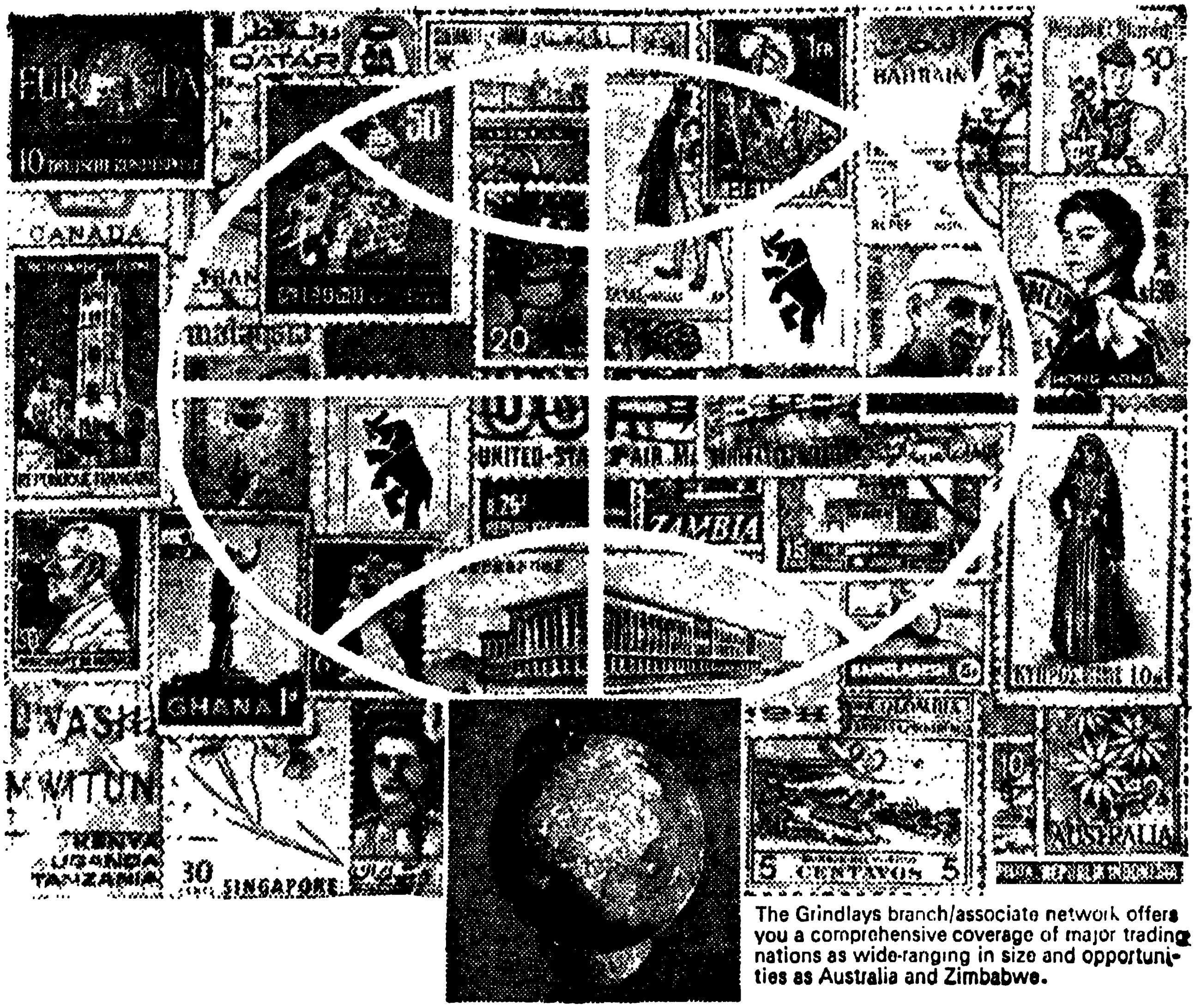
In the economic aspect invalids co-operatives differ from other enterprises first and foremost by the fact that they enjoy certain privileges, e.g. they have the monopoly in the production of certain articles. These privileges are an equivalent of the cost of rehabilitation and the general higher production cost which is the result of employing a great number of disabled persons. They also make it possible to provide jobs to badly disabled persons.

As a result of the specific features of this organization, which provides employment to a great number of disabled persons, it not only enables invalids to earn their living, but also brings economic advantages to the whole population. The articles produced by the co-operatives of disabled persons are not inferior to those produced by other enterprises, either as regards their price, quality, or their attractiveness for potential customers. The average wage of a disabled person employed in an invalids co-operative does not differ essentially from the national average wage of industrial workers.

The co-operatives organize various training courses, lectures, talks, competitions, exhibitions, demonstrations, discussion meetings and social gatherings in their own clubs and common rooms In this activity they are assisted by State houses of culture and by normal healthy persons who attained these events alongside the disabled persons. The training and self-tution of disabled persons is also carried out through the network of co-operative libraries and book lending centres which offer specialised publications as well as novels and general reading matter Co-operatives run various amateur artistic ensembles ; light entertainment, theatre, music, song, dance and reciting groups and hobby circles. Tourist trips and going in groups to concerts, theatre performances and film shows are very popular forms of cultural and educational activity.

UNITED WE STAND

DIVIDED WE FALL



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Cover Story

Why is Bihar Backward?

Dr. K. N. Prasad*

A fair price shop in Bihar

BIHAR still conjures up, by and large, "an image of agricultural primitivism and unrelieved poverty". In 1975-76 per capita net domestic product of Bihar, at current prices, was Rs. 596, which was nearly 60 per cent of the figure for all-India (Rs. 1,008). In 1977-78, 57.49 per cent of the total population in Bihar was below the poverty line as against the all-India figure of 48.13 per cent. A latest estimate of the Bihar Government puts the percentage at 64, or 6.3 million families. Poverty is abundantly revealed in undernutrition and malnutrition of a large number of people owing to inadequate purchasing power and rapid growth of population (at the approximate rate of 2 per cent per annum). There is huge migration of farm labourers from Bihar to Punjab and Haryana due to lack of gainful employment in their home villages and the very high wages earned by them there.

The perspective Plan of Industrial Development of Bihar 1979-80 to 1988-89 by the NCAER completed in November, 1978 showed that economic development of Bihar had been relatively poor during 1960—1975. Annual rate of growth in the State income had never exceeded five per cent, while the growth in per capita income per annum had rarely touched a figure of 3.5 per cent. Income originating (in real terms) from the agricultural sector, which continued to be the principal source of livelihood for over 80 per cent of the population in the State, had been practically stagnant. During the 1960's agricultural income ranged from Rs. 500 to Rs. 560 crores (at 1960-61 prices), compared to Rs. 1,190 to Rs. 1,240 crores (at 1970-71 prices) from 1970 to 1974. From 1960-61 to 1970-71 the price index for agricultural commodities increased by 82 per cent.

The growth rate of the entire manufacturing sector was 12.2 per cent per annum for the period 1970-71 to 1974-75. In 1971 around five per cent of workers in Bihar were engaged in industry (all-India figure being ten per cent) and 1.5 per cent of them were in mining and quarrying (all-India figure one per cent).

There was near stagnation in the absolute value of the State income originating from the agricultural sector (at over 50 per cent) and in the real income originating from the mining (at nearly four per cent), construction, power, transport and commerce sector. But there was an increase in the share of the manufacturing sector from 12.9 per cent to 18.5 per cent. The contribution of the banking and insurance sector increased by 50 per cent. The contribution of the services sector was about 20 per cent. This was a somewhat high percentage.

In Bihar at present neither the industrial sector can bear the burden of carrying the agricultural sector on its shoulders nor the agricultural sector can do the same in relation to the industrial.

Near stagnation in the growth of the agricultural sector and infrastructural facilities appeared to be an overwhelming reason for the relatively low level of growth in the State during the period. "Sound foundations" for "sustained economic progress" have not been provided so far.

A survey conducted recently by a team of experts belonging to the Chotanagpur Chamber of Commerce and Industry reported that although the installed capacity of the Bihar State Electricity Board totalled 775.27 MW (682.50 MW from thermal, 80 MW from hydel, and 12.77 MW from diesel sources), the normal generation of power never exceeded 300 MW, as against the minimum requirement of 600 MW. Moreover, the normal load requirement was increasing at the rate of ten per cent per year.

For the bulk of the population in Bihar the existing levels of consumption are so low that a considerable proportion of the additional output of the economy is devoted to the improvement of living standards. A smaller proportion is left over for development of the stock of capital, material and human. People have been saving mostly for their old age or for their children, to quote Keynes' words.

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* Professor and Head of the Department of Economics Patna University.

Long gestation period

The heavy, long gestation period, capital-intensive projects, the so-called levels or catalysts of economic development, which the public sector embarked upon, took much longer to complete and cost a great deal more than anticipated. The benefits were, therefore correspondingly less and took longer time in accruing. Moreover, some of the projects on completion were saddled with substantial under utilization, representing a large loss in potential income and potential savings for reinvestment. Added to this, there was glaring lack of synchronization in inter-dependent projects, leading to delays in the availability of inputs or in the emergence of markets.

Casteism

Casteism is one of the most formidable obstacles to the social and economic progress of the State.

Bihar being a highly inegalitarian. class or caste-ridden society, its inhabitants in one class or caste identify among themselves but not with those in another class or caste, and hence the very mechanism of identification actually projects inequalities.

One positive goal of socialist pattern of society, viz., "the creation of a sense of partnership among all sections of the community" has seldom been sought to be attained in the State. A good many able and honest men have been intentionally debarred from participation in the formulation and execution of public decisions because of their caste or class disqualification. The incident of birth continues to make or mar the career of a vast majority of the intelligentsia class in this most caste-ridden State of India. Even if certain people were to bleach their places of work with their bones serving hard and honestly, they would not get any recognition whatsoever, whereas certain others who are deficient in many respects can rise to any height, things have come to such a sad pass in Bihar. Decisions of all shades and of varying import are tainted by caste considerations. Political ideologies tend to be subordinate to caste notions.

The greater frequency and vehemence of social tensions in Bihar has come seriously in the way of the progress of planning in the State by keeping the attention of the administrators distracted from it.

The "political apathy and backwardness of the rural masses, weighed down by centuries of casteism and economic exploitation and totally dependent on their semi-feudal landlords for such employment as they can get", was hitherto "a most potent stabilizing factor". But these are under heavy odds now as Bihar's population is not only larger but also "more articulate". The recent awakening has brought to the fore pressing claims and expectations. The economic problems of the weaker sections of society, especially the need for larger opportunities for work, have been thrown into sharper relief.

A Bihar farmer in his farmland

Bihar farm labourers migrate to Punjab and Haryana for gainful employment

Army of Serfs

In a sense, a larger part of the village community in Bihar consists of those who may be described as being economically weak. Their poverty has been a sure road to their serfdom. The landlords prefer to maintain an army of serfs on consumption loans and tenurial uncertainty so as to perpetuate and extend the bondage under which the small peasants, bataidars (share-croppers) and landless labourers live. The landlords and the ruling elite, between them, control the suppressed and unorganised serfs in respect of universal adult suffrage. Thus, economic, social and political power and exploitation go hand in hand to the shame and detriment of Bihar, as Verghese has painfully observed.

Class War

The growth of a new outlook on life and work has been slower in Bihar because of the age-old hold of the feudal and semi-feudal mentality. Female education and cooperative movement too have progressed less in consequence thereof.

Of late, the villages in Bihar have become the scene of plunder, killing and loot. They are in deplorable state, both morally and materially. The near collapse of community life and the absence of any sense of belonging together are only too obvious.

The persistence of serious social and economic inequalities in the rural areas has given rise to social tensions between different classes and castes. The growing caste war between the upper classes and the leading backward classes as also the conflict among the latter is one significant reason for mounting violence and social tension in rural Bihar. Broadly speaking, agitations have been launched on the issues of distribution of land to the landless workers and increase of agricultural wages.

The problems of share-cropping, landlessness and unemployment have been most acute in rural Bihar. Verghese very aptly remarks that land in Bihar is politics which in turn is closely related to caste, a vicious circle that has nurtured feudalism and hampered social and economic progress.

The political instability of the diate past was a sequel to these social tensions. But even during the period the Government has enjoyed stability the State has not travelled much farther on the road to economic progress due to a weak political will to take decisive and firm action. The period has been characterised by long years of drift and lack of direction on the part of the Government.

Absence of efficient Government

There is widespread corruption is Bihar. The attitude of the people and the pattern of conduct, which obtain in Bihar, have not been in harmony with the Plan objectives. Very few people work for the good life which all can share. Certain norms of behaviour, with accent on restraint discipline and consideration for others could not be cultivated and woven into the fabric of the character of the people of Bihar. The Third Plan was candid, "A set of moral and ethical values has governed Indian life for ages past, even though people may not have lived upto them". This is truer of Bihar than of any other State in our country.

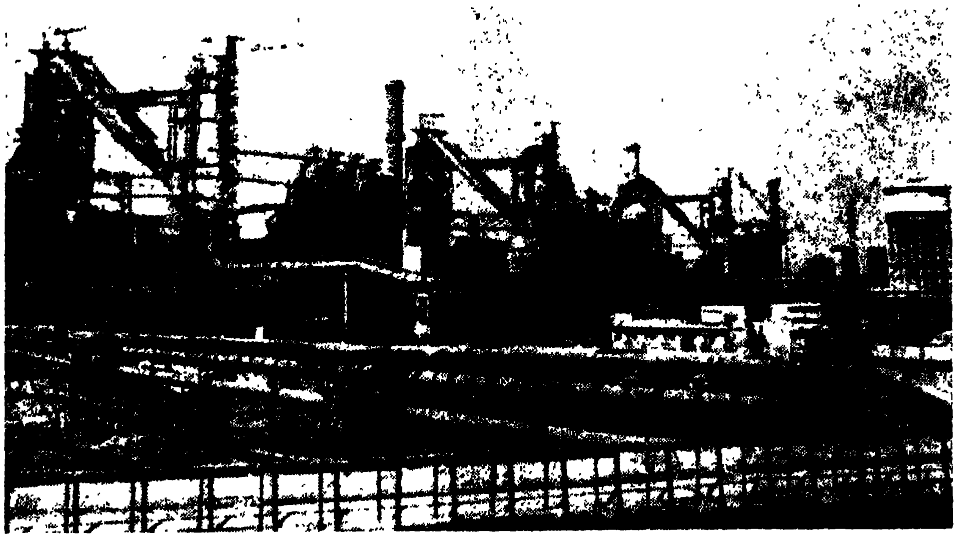
The absence of a good and efficient government is a great obstacle to economic progress. As a matter of fact, Bihar has been branded by most outsiders as "a State of non-governance", as one in "perpetual infancy". Whatever has happened in Bihar on its social front is described as "the manifestation of the accumulated sin of the administration", or better, a "fall-out of the situation created by the ruling axis of politicians, criminals and officials". People's faith in the Government and its promises has often been shaken to its core. Keynes had asserted that ideas were more powerful than vested interests. But when in a State like Bihar ideas become the monopoly of vested interests and non-vested interests cease to have ideas, or, in other words, refuse to think and react, then who should be held responsible for such a stalemate or bankruptcy?

Casteism is one of the most formidable obstacles to the social and economic progress of Bihar. Its inhabitants in one class or caste identify among themselves but not with those of other class or caste. The very mechanism of identification projects inequalities.

Agrarian structure

The salient features of the prevailing agrarian structure in Bihar are : a landowning gentry which takes no personal interest in cultivation, a preponderance of impecunious small holders with no access to inputs, and a tenancy with no stake in the land. The chronic unemployment of the landless in areas of high population pressure is aggravated by the uneven distribution of water resources, varying holding sizes and tenurial conditions. The crux of the matter is that the land structure is "as inequitous as it is inefficient."

Expert studies by Ladejinsky, Thorner and Verghese conclusively prove that "an inequitous land structure characterized by extensive (even if concealed) landlordism, exploitative share-cropping tenures on oral leases that cover upto 40 per cent of the cultivated areas and semi-feudal relations have proved to be a formidable deterrent to the utilisation of irrigation and to higher agricultural production, productivity and employment."



A view of Bokaro Steel Plant

To give concrete examples, although the canals in the Kosi belt have been in operation for quite some years, yet the highest utilisation so far has been approximately 40 per cent of the potential in Kharif, 15 per cent in Rabi and ten per cent in Garma. This has been attributed to the concentration of land ownership and wide-spread share-cropping on terms unfair to the share-croppers. Besides, the green revolution in this belt was centred round wheat, not paddy (the acreage under which in Bihar is the highest in India). The much-publicised "Kosi Kranti" project has proved a "a non-starter" on account of political indecision, bureaucratic indifference and lack of understanding among the people of the benefits of the project.

The insecurity of tenancy impedes the adoption of the modern agrarian practices, viz., inputs like fertilizers and high-yielding varieties. Conferment of ownership on tenants is capable of enabling them to raise more funds on security of their additional rights in land for agricultural development. In Bihar even under the first round of land reforms numerous tenants were reduced outright to the status of agricultural labourers when the land they tilled was resumed for personal cultivation by their masters.

Partly due to the State's failure to consolidate holdings farming operations are less efficient and modernization of agriculture is slow.

Also, the rent payable by the tenant to the landholder is not regulated effectively. Short of it, security of tenure becomes meaningless and the tenant, who gets into arrears, is obliged to surrender tenancy on demand from the landholder. Apart from this, a higher rate of rent serves as a disincentive and an impediment to investment in agriculture.

In Bihar, the inadequacy of credit facilities further retards technological change. Evidently, a weak co-operative structure and insufficient flow of institutional credit have hindered the development of ground-water resources.

The main constraint in the flow of credit to agriculture has been low recoveries, high level of overdues and consequent ineligibility of a large number of co-operative institutions for refinancing. The percentage of diversion of short and medium-term loans for other purposes has been extremely high.

Despite the fact that the co-operative sector is the single most important agency for channelizing credit into the rural economy, the role of the Co-operative Department of the State Government in toning up the functioning of the primary co-operatives has been utterly disappointing. It has squarely failed to audit, inspect, supervise the activities of the societies and speedily dispose of the arbitration cases. It has treated the primary societies with benign neglect and indifference.

Poor entrepreneurship

The NCAER study noted that there had been a considerable improvement in industrial activity in Bihar in recent years. This was reflected first in an appreciable increase in the income originating from the manufacturing sector and secondly, in the sharp rise in the number of people seeking industrial licences. This notwithstanding, Bihar has suffered miserably from insufficient domestic accumulation of capital and the poor entrepreneurship of its indigenous people (barring a microscopic few). An average Bihari is not a good adventurist. An important reason for the low level of industrialization of Bihar is that the corporate sector is mainly in the hands of immigrants who tend to take the profits out of the State to their native places.

A number of industries in the State are sick. The main reason for the sickness of the sugar industry in Bihar is the short supply of its raw material, the sugarcane. Only half of the installed capacity in the industry is at present utilized. The Uttar Pradesh sugar factories have been increasing their dependence on the Bihar sugar-cane growers from year to year The availability of roads towards Uttar Pradesh facilitates this in a big way, whereas several areas of the State (one instance is Dhanaha in Champaran) are cut off from the rest of it for want of transport facilities.

The State has not been receiving its legitimate share in the allocation of vital raw materials by the Centre. As a result, the industries based on them have starved.

There is almost complete absence of production of important basic chemicals in the State. Chemical industries based on forest products and agricultural wastes have not come up in the State. Bihar does not manufacture drug intermediates or basic drugs. The basic inorganic chemicals are all in short supply in the State.

The aluminium industry has been sick for long. It faced a serious problem arising out of a high rate of rejection at the finished product stage. This rate has lately been brought down from 36 per cent to six per cent.

Central Government's Apathy

The Government of India has not uptill now accorded any recognition to the claim of Bihar to set up a petro-chemical complex at Barauni, the seat of the oldest refinery unit (the Barauni Refinery Ltd.) in the public sector. Naptha produced there, being diverted to the production of fertilizer at present, can better be used for aromatics, yielding a higher value.

Supplies of certain key materials, such as steel, pig iron, aluminium, parafin wax and cement are controlled by the Central Government. The State has not been receiving its legitimate share in the allocation of these raw materials by the Centre. As a result, the industries based on them have starved and have had to slow down the pace of their work.

Coke-oven by-products are not released by the Bokaro Steel Ltd. A fair share of the slag is not allowed by the Bokaro Steel Ltd. for the cement units in the State.

The relationship between the leading industries and subsistence agriculture of Bihar is tenuous at best and that between those industries and its regional needs is very weak. The region covering, Dhanbad, Ranchi, Sindri, Jamshedpur, Jharia, Jorapokher, Sijua and Tisra is the richest mineral-bearing one containing some of the largest thermal and hydro-electric generating units and the heaviest concentration of steel and heavy engineering complex. In spite of this, its impact ('spread effect') on the surrounding backward regions is extremely limited. Instead the backwash process has started operating in it. According to R. P. Misra, its linkages with the Calcutta industrial region are closer than those with the towns in the area. The big enterprises stand not as monuments of national achievement but as symbols of regional failure. They do not function as innovative and growth-promoting centres nor as social interaction points nor as centres of diffusion of information. They are symbols of "enclave development".

To illustrate, the Hindustan Copper Corporation has not had any impact on the small industries around it. Likewise, the uranium complex at Yaduguda has not induced a cluster of chemical industries around it.

Except for Jamshedpur, most of the older towns in the Chotanagpur region have grown haphazardly in an unplanned way. Their link with the villages and the small towns in the neighbourhood is weak. They are cluttered with slums of various types and sizes. The mining towns have quasi-permanent settlements. The amenities have not kept pace with the industrial growth of the region. Ranchi's transport system is poor and sub-optimal and piecemeal. The tribal people have not as yet been foregathered in the mainstream of development.

Cities like Patna have polar activities but they are devoid of the channels (communications and transport, in the main) through which they can diffuse their innovative characteristics into the hinterland.

Weak resource base

As Bihar is one of the least developed States of India, the State Government has had a weak resource-base. The familiar paradox of under-development is in the lime-light. Low per capita income is chiefly responsible for a low degree of resource mobilisation. The subjection of agriculture to frequent floods and occasional droughts and low levels of savings and capital formation impose serious constraints on the State's capacity to raise resources for development.

Per capita Plan expenditure in Bihar was lower than the all-States average in the Plans. Bihar lagged behind most other States in stepping up Plan investment.

A notable feature of financing of the Plans in Bihar has been a sizable short-fall in actual Plan outlay in all Plans (except the First). Bihar's proposed Plan outlay as proportion of all States' figure, varied from 7.4 per cent in the Fifth Plan to 9.2 per cent in the Third Plan period. Its share in the actual Plan expenditure of all States taken together was lower than that had been proposed in the Plans (with the lone exception of the Second Plan period). There was a big gap (from 22.3 per cent in the Fourth Plan to 52 per cent in the First) in the per capita Plan expenditure between Bihar and other States. However, over the Plans the gap has narrowed.

The State has been forced to commit a large portion of its resources to providing the Central Sector industrial projects with capital-intensive infrastructural inputs, such as power and water to the detriment of other priority sectors of development.

It is surprising to note that Bihar, with nearly 40 per cent of the reserves of India's mineral resources, earned in 1975-76, 23 per cent in total royalty on minerals paid to all States taken together. The rate of sales tax on transactions of minerals is very low, just four per cent.

A number of the Five-Year Plan projects (e.g., power, irrigation, industrial) involving heavy investments are not yielding returns on them and the Government has been neither keen nor exerting to reap and promote them.

A constant increase in non-development expenditure has affected adversely the Government's capacity to step up investments. Bihar has been continuously increasing its commitments on dearness allowance and higher pay-scales to its employees. It has considerably enhanced its unproductive social expenditure, particularly that on doles, as well as its disbursement on subsidies. It forwent bulk of the land revenue for political reasons in the bygone years.

An increase in the State's domestic product, which has taken the form of an increased output of services needed for administration, cannot be considered a clear economic gain. For example, there has been reckless job creation in the Government departments and sinecures have been appointed thereby.

In other ways also the Government has been pursuing rather indiscriminately and practically in all spheres of its control and operation a crash programme of extreme equalisation involving itself in colossal financial liabilities that might precipitate the collapse of the economy—a policy which in many areas eschews merit and efficiency and as such threatens to dampen and deaden all incentives to good and keen work.

Above all, the State Government has betrayed lack of capacity to estabish clear priorities, to allocate its resources on a systematic basis, to identify projects and to monitor Plan implementation vigorously in several spheres.

To sum up, there is no universal reason to offer why Punjab is rich and Bihar is poor. For knowing the reasons for Punjab's richness and Bihar's poverty we have to examine carefully what Bagehot describes as "the whole intrinsic nature, and all the outward circumstances" of the two States. ☐

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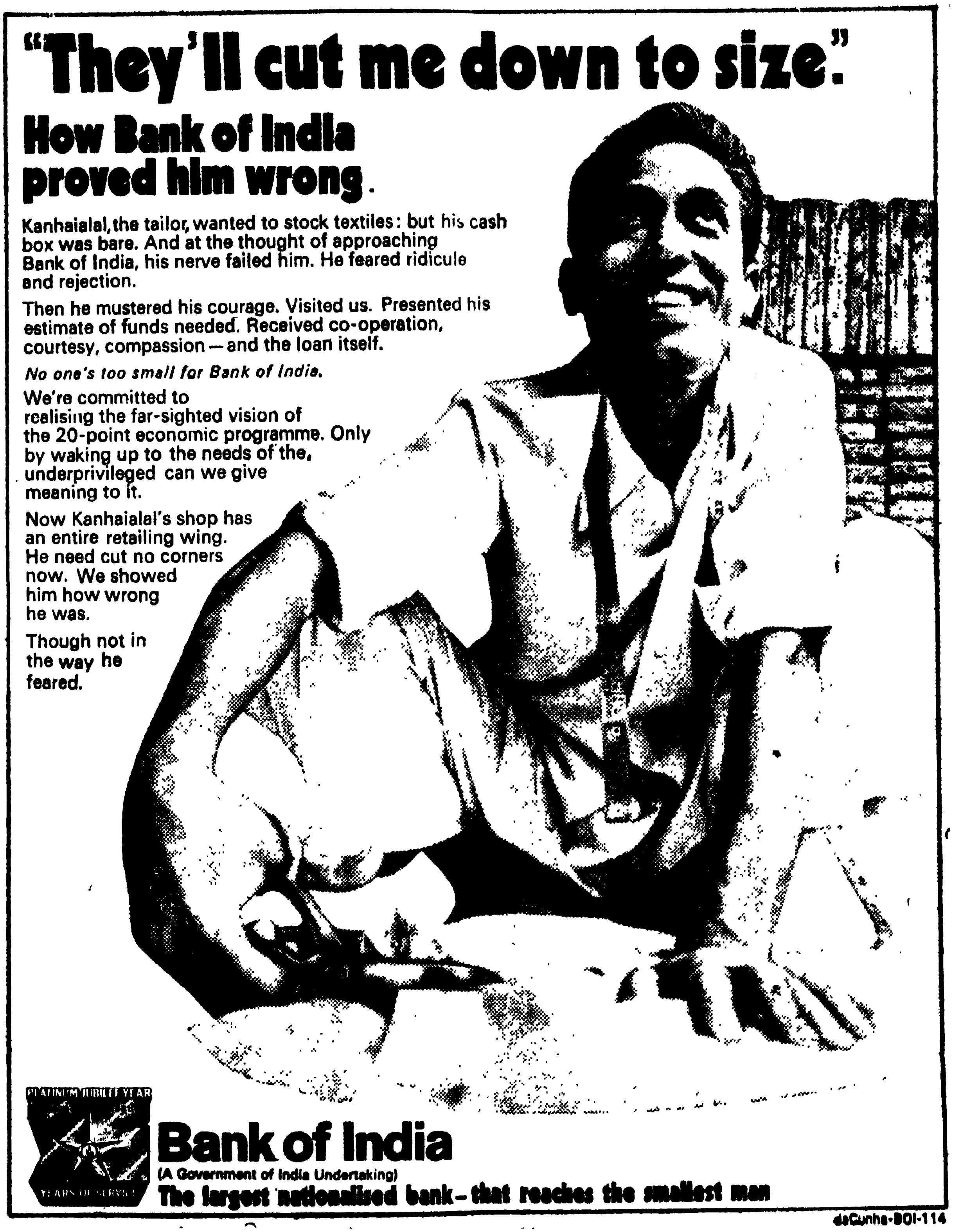

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Amelioration of Conditions in Drought-hit Areas

B. Sivaraman*

THE areas demarcated as chronic drought affected in this country over about a third of this country. The arid desert areas are spread over 3.37 lakhs sq. km. out of which the hot arid deserts lying in the States of Rajasthan, Gujarat and Haryana are about 2.35 lakh sq. km. in extent and the cold arid deserts in the States of Himachal Pradesh and Jammu & Kashmir cover about 1.02 lakh sq. km.

The chronic drought affected areas can be divided into four classes. They are :—

1. Arid desert areas where the precipitation is low in total magnitude and also highly variable over the years and within the year.
2. Areas where the precipitation is less than 500 mm in the year on the average,
3. Areas where the precipitation is between 500 mm and 750 mm in the year on the average, and
4. Areas with over 750 mm of rainfall in the year on the average but with a highly variable pattern of distribution within the rainy season.

If we take agriculture to include animal husbandry, forestry, horticulture and pasture development, as we should rightly, the less the rainfall in an area, the higher the per family availability of culturable land. Non-cultivable land is also available in greater extent than in higher rainfall zones. Precipitation in non-cultivable areas provide run-off which if properly directed can add to availability of water on culturable areas. The strategy will have to utilise both these factors of larger areas and available run-off from outside the cultivated areas.

Drought relief work in progress

Water Harvesting

In the first two classes, viz, areas with less than 500 mm of rainfall in the season, if one depends purely on the precipitation on the land to support the growth, every year will be a drought year because even bajra, the cereal requiring the least amount of water, requires 500 mm of water suitably distributed in the cropping season for survival and production. In both these classes of areas, land mass over which precipitation occurs is large and the cultivable area only a fraction of the land mass. Our aim nas to be to see that the run-off from the non-cultivable areas is conducted and collected in storage for human and animal use or on land where the cultivation is organised. The arid zone of Rajasthan has traditionally developed two important systems for water collection which can be usefully studied. All human and animal settlements in Rajasthan generally lie in basins where the run-off from a large land mass gathers. This is the reason why even with small amounts of rainfall but in concentrated precipitation, we see from time to time floods in the city of Jodhpur and so on. This run-off is collected in various cisterns in the village, some common and some individual. The cistern design is such to maximise the run-off collection and minimise evaporation losses. In areas where water is scarce, the design also allows for locking of the storage. Some analysis of the cost and benefit will be worth-while. In Churu district, a new type of water collection mechanism in porous soil areas has been developed and private investment has been substantial. It may be worth exmining with what benefit. The other important concept that the Paliwals of Jailsalmer have contributed is the Khadin system. In this the run-off from vast desert areas is guided into basins by blocking and the water is allowed to seep in. The underground water so stored is retrieved by ordinary wells or plant growth. The magnificient orchard of the former ruler of Jaisalmer at the outskirts of the town is the culmination of this concept of water harvesting. It is a strange fact that this concept of water harvesting has not trickled to the other princely states in Rajasathan where there are equally large Magra areas where even small precipitation runs off. An analysis of this factor and a cost-benefit exercise will be exteremly paying. Gujarat and Haryana follow a percolation tank method to collect water in the valleys—to allow it to seep through and retrieve it through ordinary wells lower down. Of course this system will be useful in undulating terrain with dipping valleys. It can apply as a water gathering and conservation system even in higher rainfall areas as Maharashtra has proved.

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* Chairman, National Committee on the Development of backward areas, Planning Commission. These are excerpts from his keynote address at the seminar on Drought Prone and Desert Areas- Mar. 6-8, 1981

The problem of having one's own plough bullocks is much more difficult in drought prone areas. In a normal year of rainfall there will not be sufficient bullock power in the area to till all the land. In our strategy for agricultural improvement in these areas we have to take note of this limitation.

In the zones with less than 500 mm rainfall, there will be large areas where supplementation of the precipitation by artificial means may not be possible and if possible may be limited. The National Commission of Agriculture (NCA) has drawn attention to the fact that in these areas a pastoral economy is the safe answer. It is not an accident that the best breeds of cattle and sheep are found in our arid areas. The NCA has suggested two lines of attack : Utilising the Rajasthan canal system and other irrigation systems in the arid zones, the existing cattle and sheep can be herded near these perennial sources of water during the crucial seasons for the pastures so as to give the pastures time to recuperate in the best manner possible. The Central Arid Zone Research Station at Jodhpur has proved conclusively that an acre left to fallow with proper seeding of the right type of grasses can in one year be in a position to feed three sheep by rotational grazing. Certain types of grasses and fodder trees are saline resistant at reasonable levels. Proper agronomic practices can find a via media between use of rainfall and brackish water.

In the low rainfall areas there has been a tendency in the past to cultivate the marginal lands mainly as a gramble on the season. This has led to crumbling of the top soil and sand generation. As a result, sand formation has assumed vast proportions in Rajasthan, Haryana and even in Gujarat. The N.C.A. has dealt with this phenomenon and suggested that stabilisation of the sand dunes is the only answer and letting the pastures fallow and observing rotational grazing is imperative. Rajasthan has taken steps in this direction. The sandstorms are a continuing menace to settled agriculture and habitations as in Jailsalmer. The NCA has suggested an agressive programme of shelter belt tree habitations as in Jailsalmer. The NCA has suggested plantations and generaly afforestation across the wind direction wherever some water is available reasonably closely. Here again Rajasthan has taken a lead.

In arid zones the choice of flora for either afforestation horticulture, fodder or agriculture can be suitably selected from world experience. The Jodhpur Institute has done a lot of work in this direction and a detailed look at the progress achieved so far will be of use to the seminar. Improvement of the aridity resistant local plants which are already in consumption pattern of the people can be generally improved by the breeders. One example is the Ber. We can discuss the present status in this research.

The ICRISAT, Hyderabad, has established on its black soil farm that in an area where the rainfall avearges 700 mm and is erratic in its precipitation during the season, proper land-shaping and collecting the excess run-off in suitable mini-farm ponds when heavy precipitation takes place, enables the farm to harvest a good jowar crop even in years of bad rainfall. The entire approach is based on allowing as much of the precipitation as possible to seep in, instead of running off and collecting surpluses for future use in farm ponds at the lower contour. The saved water is pumped up during periods of moisture stress in the crop. Trees and pastures are generally on the higher contours where the soil is not suitable for agriculture, and the water seeping in provides a cushion for subsoil moisture on the agricultural lands. The water shed management approach takes advantage of all these facts to increase overall production in addition to water harvesting for the agricultural crop.

A farmer's family in the areas with less than 750 mm rainfall, even if he gets a good income by the new strategy, will yet have quite an amount of time in their hands where subsidiary employment would be welcome. Village and cottage industries have got a great relevance. By careful planning and organising raw material supply and marketing of finished goods, it should be possible to locate suitable subsidiary industrial occupations in these areas of low rainfall.

In the areas with more than 750 mm of average rainfall, suitable resorvoirs at the head of the watershed in undulating terrain and farm ponds at the lower contours in fairly level areas, can give the additional artificial moisture to take care of the periods of non-preciptation. Choice of the crop is an important aspect in these areas. Tradition has to be broken and the best crop for the pattern of rainfall, the soil and the terrain has to be selected from the overall experience of the scientists. If all this can be one, it will be found that in many of these areas with retentive black soil it will be possible to grow two major

Farmers drawing water from partially dried up river in Bihar

crops in a year by shortening the khariff and sowing the rabi on moisture retained soil in October.

Weather Rythm

Agro-meteorology is an important adjunct to drought amelioration. If the weekly rainfall pattern in the area during the normal cultivation season for a long period of years is analysed it is found that in the Indian monsoon conditions, there are periods of thirty to fifty days when the amount of precipitation in each week is reasonable for plant growth and the amount of rainfall in crucial periods of plant growth sufficient. The fluctuation of rainfall over the years in this period is tolerable for a reasonable risk of crop. If crops are so chosen that the early establishment of a crop is fitted to one of these sure periods and the crucial periods of growth of the crop fitted into the periods with higher moisture levels, the crop can generally be successful. The ICRISAT pattern of land shaping will completely immunise the farmer in bad season. Our problem is how not to lose the first rainfall and the early accumulation by attempting a khariff jowar and a rattoon rabi jowar crop. The Rahuri University in Maharastra has experience of these niceties and their experience is worth considering. In Hyderabad, the rainfall pattern has two peaks and the coordination project for Dry Areas has established that a castor crop sown with the first rains is normally highly successful. Third discovery is responsible for the rapid growth of castor cultivation in this zone.

In drought prone areas the problem of owning one's own plough bullocks is much more difficult. It can easily be computed that for the area available, in a normal year of rainfall there will not be sufficient bullock power in the area to till all the land. In our strategy for agricultural improvement in drought prone areas we have to take note of these two factors for the immediate future.

The problem can be illustrated by the practical experience in Ibrahimpatnam taluq in Hyderabad District of Andhra Pradesh. The strategy which has proved effective by the Coordination Programme was to sow castor at the first rains for the areas where the meteorologists have established two peak rainfalls with a long period of drought in between. This meant that the large areas available had to be ploughed after the first rains and sown immediately with castor.

In Gujarat, it has been a traditional practice to plough the land immediately after the khariff harvest in the drought prone areas. After the first rains the soil is not again disturbed, but the seed is sown behind the plough by merely making a forrow. Ploughing after harvest can only be done when there is moisture in the soil. The period is very short when bullock power is used. On the other hand, if tractor power can be used, the period can be lengthened and the area for cultivation can be well tilled. The solution in such areas with shortage of bullock power, therefore, appears to be tractorisation on larger-scale and tilling after harvest.

Whilst the potential for organised pasture development and animal husbandry is very substantial in semi-arid and arid areas, there are certain unhealthy trends which have got to be reversed. The National Commission on Agriculture in its report on Desert Development has pointed out that one of the reasons for sand-dune formation in the deserts of India is the cultivation of marginal lands unfit for cultivation. The best use of such land is obviously pasture development and animal husbandry both of which require capital.

N. S. Jodha, Economist in ICRISAT, in his Progress Report-3 on Economic Programme, has pointed out the importance of inter-cropping in traditional farming systems in dry areas. In a study carried out in six villages, two in each of the agro-climatic zones in Peninsular India, he has pointed out that in traditional farming in dry areas, inter-cropping is an important method adopted by farmers to reduce risks and provide for their subsistence economy. □

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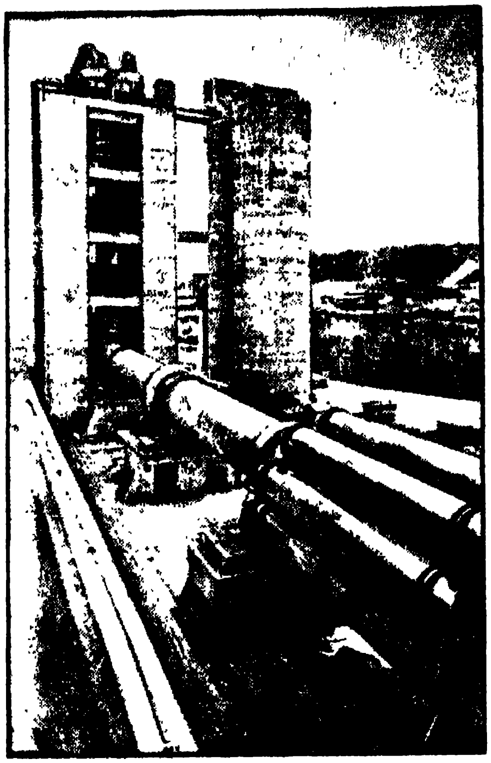

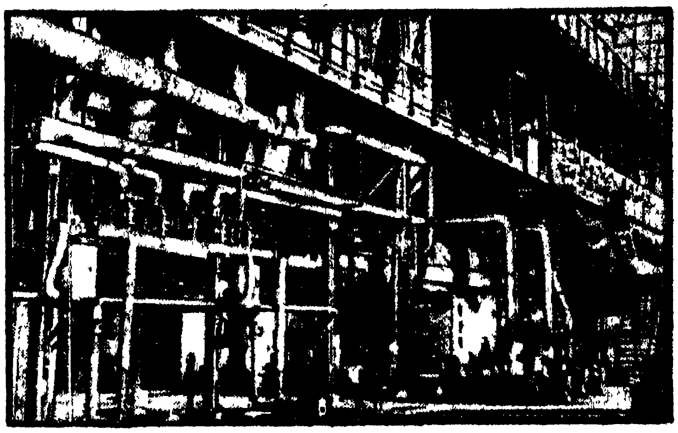

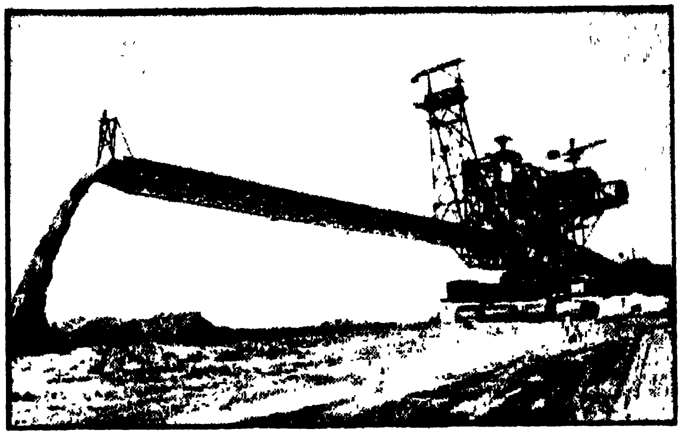

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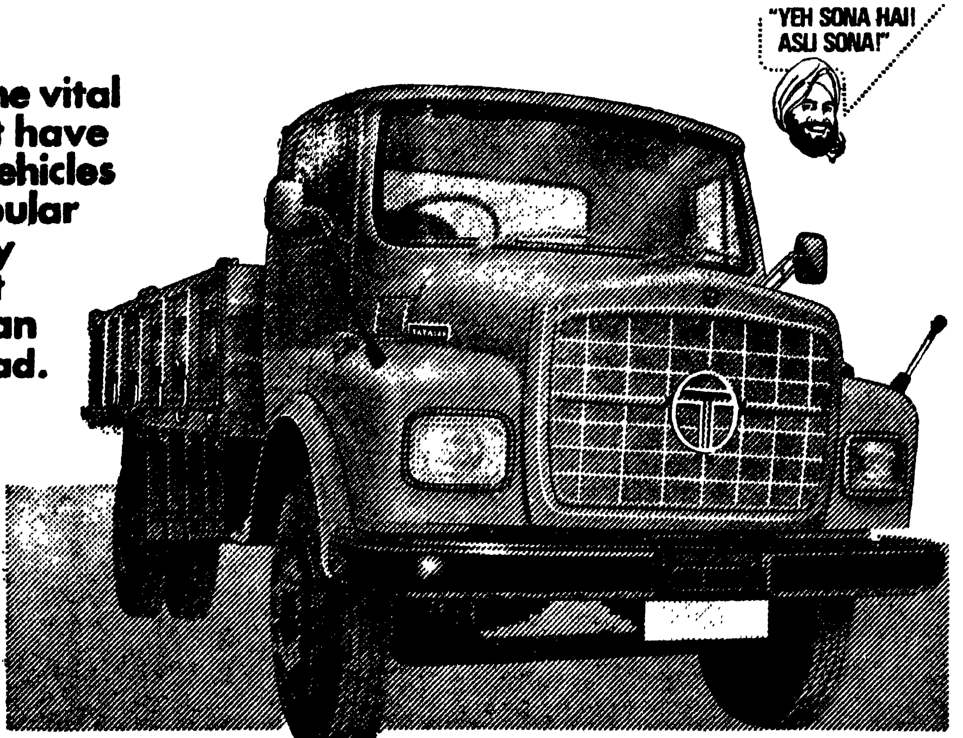

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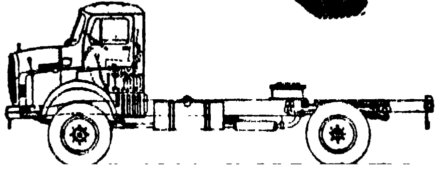

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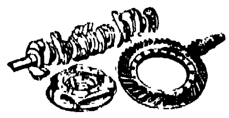

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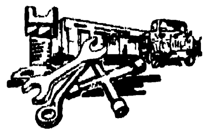

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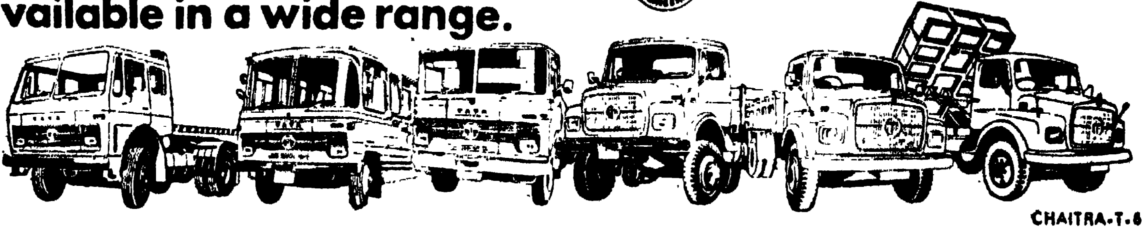


CHAITRA-T-612

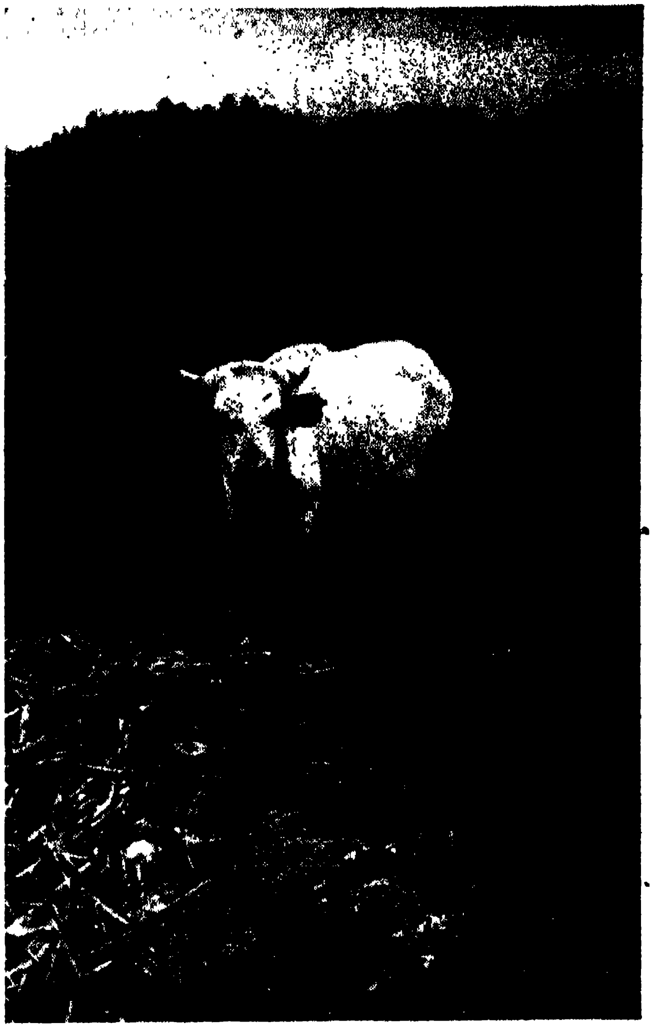
Livestock in Arunachal Pradesh

Dr. M. C. Joshi and Dr. S. D. Jha*

THE socio-economic life of the people of Arunachal Pradesh centres round livestock and poultry. The practice of rearing livestock and poultry comprising fowls and ducks is prevalent throughout the length and breadth of Arunachal Pradesh. Different animals are preferred in different areas and among different tribes. Their preference for various species of livestock is considerably influenced by the socio-economic fabric and geographical conditions. The gainful exploitation of livestock is not even.

The horses and ponies, donkey, yak, dzo-dzomo and sheep are significantly preferred by the Monpas and Sherdukpens who inhabit west Kameng District. Elephants and buffaloes are preferred in the foothills of Lohit and Tirap. Preference for mithum prevails throughout the territory. Tirap is the only exception. The goat, pig and cattle are common demesticated animals among all the tribes in all the districts subject to suitable geographical conditions. Poultry is the household word in Arunachal Pradesh. But in the foothills the preference for duck has increased in recent years. Being hard, heavy and a good layer, the duck offers good promise for the rearers in the territory.

The socio-economic and religious obligations of the tribesmen in Arunachal Pradesh are numerous. The role of livestock and poultry starts from the birth of a baby or even earlier and continues till the time of death and has great significance. There are pre-birth formalities and post-death rites for a person, performed meticulously with the help of livestock and poultry. For instance, the luck forecast during pregnancy of a house-wife is read with the help of chicken's egg. The fortunes are foretold with the help of writings on chicken liver freshly cut out. The sites of jhum and residential houses are selected only after having read the omen with the the help of livestock and poultry which are also given as gift. Sometimes the oaths and promises are administered with the help of livestock and poultry. Similarly for dispensing justice, when peace and goodwill is to be restored poultry cannot be avoided. In PAHI ceremony etc. poultry is a must. Thus the livestock and poultry symbolise wealth, power, prestige and social status among the tribesmen.



Mithun is very useful but many households can't afford to buy it.

The Monpa group of people comprising Sherdukpen Khamba, Memba etc. are fond of livestock. They are the inhabitants of Tawang and Bomdila areas. Ther preference goes for dairy animals significantly cows and yak. They domsticate yak, dzomo dzo, significantly, apart from pigs, sheep, horses and ponies, mules, goats and fowl. The yak serves them as pack animal. They milk yak and prepare various milk products. The Monpas use the Yak hair and hide to make ropes and cloth and shoes respectively. The second preference of the Monpas goes for sheep which provides them wool and mutton. The mules, horses and ponies are the third in order of preference.

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* Directorate of Agriculture and Rural Development, New Itanagar, Arunachal Pradesh.

The Banghi-Nissi groups inhabit Seppa area and western and central part of Subansiri. Tagnis inhabit Daporij area. These people have different outlooks towards rearing livestock as compared to Monpas. Their livestock consists of mithun, cattle, pig, goat etc. and poultry bird, fowl significantly. They rear the animals mainly for meat, barter, sacrifice, payment of bride price, discharge of social and religious obligations etc. These people were not used to consuming milk. But recently some of them have started taking milk. The number of animals is considered, as an index of wealth and is a prestige symbol. The socio-economic fabric of this group of people is woven round mithun, pig and chicken mainly besides yak, sheep, elephants and buffaloes.

Mithun is valuable and very useful and is usually not within the reach of poor people who go for cattle as substitute and alternative. That is why the cattle population has increased during recent years. The recent livestock census has produced detailed information in this regard.

The Apatanis are the inhabitants of Subansiri districts. These people are privileged ones from the point of view of fertile flat land. They are good cultivators as compared to Nissis who live in the same district. Apatanis have harnessed the natural resources and their lands are well irrigated. But fields are simply manually dug and hoed. Monocropping paddy is largely practised.

Unlike their Nissi counterparts the Aptanis are faced with the scarcity of land. The habitation of this tribe is concentrated over 52 sq. km. area. The density of population in Apatani plateau is more than 236 persons per sq. km. which is singularly high as compared to that of average 6 persons per sq. km. in Arunachal Pradesh. On account of this grave situation of land scarcity the Apatanis cannot afford to domesticate livestock in large number. They domesticate small animals—pigs, goats, and fowls in general. They domesticate mithun and cattle also but on a very limited scale where adjacent high land is available. The gentle slopes register high density of mithun population.

Livestock does not have dairy use for Apatanis. The Apatanis domesticate animals for exchange, sacrifice, barter, payment of bride price and other socio-economic and religous obligations. Their main interest lies in cultivation, business and service. The Nissis have large number of mithun around their villages which are the valuable possessions, and mobile reserve of meat and wealth.

The Adi group is the largest in Arunachal Pradesh. They inhabit Siang district. The Adis are considered good cultivaors and businessmen. They are industrious and intelligent and live a corporate life. But so far as the use of livestock is concerned, they also mostly fall in line with the Nissis and others. Dairy use of livestock is very much limited to this group of people. The practice of carting by bullocks and ploughing with cattle have been started in recent years in foot hils of Siang. They deploy elephants for

monpas domesticate yok and use yak milk for different edible items

Goat is an essential item for many households

lumbering of logs from the woods and there are many saw mills in the district. The livestock of Adi group of people comprises cattle, mithuns, pigs, goat and fowl The majority of the Adis domesticate above animals for barter, sacrifice, meat, payment of bride price in marriage and discharge of a number of socio-religious obligations.

The Khamptis inhabit Lohit district. They are good cultivators and are good in business. They use livestock for field work and dairy. They domesticate buffalso as dairy annimal and work also. They deploy elephants for lumbering of logs from the woods. They keep pigs, goats and poultry birds for sacrifice, meat and barter. The economic use of livestock among the Khampatis is the highest. Thtir livestock includes cattle, buffalo, pigs, goat and fowl significantly.

The Mishmis are another distinctive and major group of the tribe in Lohit. Their practice of rearing of livestock may be looked on par with that of Nissis, Tagins and the Bangins. To the Mishmis livestock do not have any significant use in dairy and field work. They domesucate animals for barter, sacrifice, meat, payment of bride price and discharge of socio-economic and religious obligations.

The Wanchos are the inhabitants of Tirap district. This is one of the major tribes in Arunachal Pradesh. The Wanchos are one of the three major groups of tribes in Tirap district. They are indifferent towards cultivation as well as rearing of livestock. They mainly depend on jungle produce and hunting for meat. They mainly domesticate animals for meat, sacrifice barter-exchange and discharge of socio-economic obligations. Use of livestock for dairy and work is almost nil among the Wanchos.

The Tangsas live in comparatively privileged locations. They engage themselves in contracts and earn through labour at tea gardens and forests. Their main interest lies in service. They also cultivate land. To the Tangsas the rearing of livestock is for limited purpose of meat, sacrifice, exchange and discharge of socio-ecenomic obligations.

The Noctes are Vaishnavities. But like other tribes of Arunachal Pradesh consumption of beef is not taboo to Noctes also. They are cultivators and rear livestock. In Tirap animal mithun is the most important cattle. Ploughing of land by bullock is practised. Milking practice of bovine and especially cow is noticed distinctively. However, the main purpose for which the Noctes rear livestock is meat, sacrifice, barter and discharge of socio-economic obligations.

There is a vast scope for the development of livestock and poultry wealth in Arunachal Pradesh. □

Open Cast Mining Project

Dr. D. K. Sinha* and Shri S. M. Kolay**

THE open cast mining project is located in a coalfield in Central India where a few other such projects are in hand to meet the demand of coal for a complex of Thermal Power Plants which are also under construction. The project report was prepared with a foreign collaboration and approved by the Government of India in 1979. The planned output of the project is five million tonnes of coal with a capital cost of about Rs. 80 crores and foreign exchange involvement of Rs. 17 crores. The project has to reach its full production capacity in 1985-86 when its coal output will be five million tonnes with the quantity of overburden excavation at 15 million cubic meters per year. The technology adopted for the project is open cast mining with deployment of heavy earth moving machineries like drag lines, shovels and drills, dumpers and dozers. The project will be equipped with the following main service facilities : A workshop in two sections will be constructed by awarding jobs on turn-key basis with the target date of completion as December 1982. A coal handling plant with provision of crushing and bunkering of R.O.M. coal, a modern rapid loading system and cross country conveyor installation. The three groups of jobs are to be completed by December 1982. Installation of electric power supply network for the mine, workshop coal-handling plants pump houses and residential colony. Installation of tele-communication links. As construction and development of the mining project continues, coal production will be picking up in stages corresponding to the demand, thermal power plant from 10 per cent in 1981-82 to 100 per cent by 1985-86.

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* Professor & Head of Industrial Engineering Department Indian School of Mines, Dhanbad.

** General Manager, Eastern Coalfields Ltd., Asansol.

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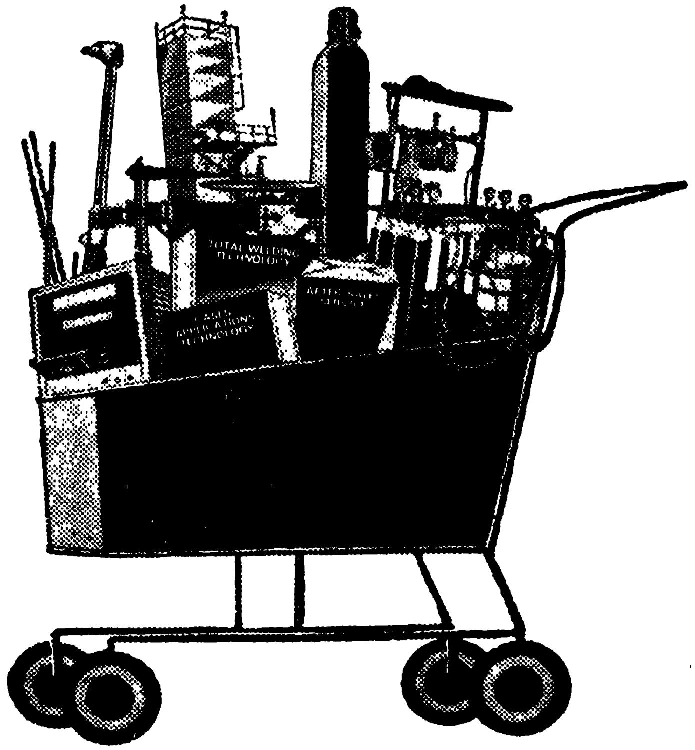

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Cashew is grown in West and East coasts of Indian Peninsula

New Trends Cashew

I. K. Menon*

THE Portuguese missionaries introduced cashew to India in the sixteenth century. Today cashew is grown extensively in several parts of the country, mainly in the West and East Coasts. Quilon in Kerala is the nerve centre of the cashew processing industry. The processing areas outside Kerala are in Goa. Tamil Nadu, Mysore and Andhra Pradesh.

Processing

In India, Kerala had more factories than other States for cashew processing, but of late there has been some change, owing to differences in wage level. The wage level in Kanyakumari (Tamil Nadu) is only 1/3rd and in Karnataka only 1/2 of the Kerala wage level. This encouraged the cashew processors to set up factories in these regions. This became more essential with the increase in the price of raw cashewnuts and growing competition in the international market for cashew kernels. Various restrictions including marketing control, movement control resulting in monopoly procurement and distribution of raw cashewnuts in Kerala were aimed at preventing flow of raw cashewnuts from Kerala to other regions and to keep the workers fully employed. But these attempts have deplorably failed. As a result of the low wage level in Kanyakumari and Karnataka, the processors, with more factories in these regions, were able and willing to pay a higher price than the procurement price fixed by the Kerala Government for raw cashewnuts. This encouraged and facilitated smuggling of raw cashewnuts form Kerala to the neighbouring States.

In India the production of raw cashewnuts is decreasing. One of the basic reasons for this low production is the apathy shown by the private individuals to take up cashew cultivation, which gives a lower yield as compared to many other cash crops like rubber or coconut. One advantage, however, with cashew is that it will grow even in marginal land where other crops may not easily come up. As cashew has been treated as a waste land crop, generally the attention given to it so far has not been very good. The present wastage of the cashew apple may also be one of the reasons for the ultimate low yield from the cashew crop.

Cashew apple products

Utilization of the cashew apple for manufacture of cashew feni, jam etc., on a wider scale may perhaps help to increase the ultimate yield of the cashew grower. One of the problems for the utilization of cashew apple has been its tender skin which damages easily even if extreme care is taken to harvest it. Fermentation starts right from the moment injury is caused to the skin and as the present cashew growing areas are scattered, it is economically impossible to carry it to a central place for extraction of juice and for further processing.

For utilisation of cashew apple on a wider scale the Central Food Technological Research Institute, Mysore, has worked out details for large-scale production of cashew brandy, cashew apple wine, cashew syrup, jam, candy pickle, canned cashew

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*Freelance Writer

in Industry

Great care is taken to maintain high quality standards for the cashew kernels that are exported

apple etc., with instructions on how to prepare them. The Institute also gives an estimate of expenditure for setting up factories for this, by calculating the approximate cost for building machinery, manufacturing and bottling and packaging. Cashewnut shell liquid, a by-product of the cashew industry is a valuable industrial raw material widely used in the manufacture of brake-linings, epoxy resins, paints, foundry chemical industry, insulations etc

Export

With the objects of promoting export of cashew kernels, cashew nut shell liquid etc., the Cashew Export Promotion Council was set up by the Government of India in 1955 with the active co-operation of the cashew industry. The Council undertakes market studies, sends trade missions to foreign countries, participates in international fairs and exhibitions, maintains public relations, conducts publicity, propagates useful information to growers, manufacturers and traders, enquires and investigates into complaints from exporters and importers as regards quality, description etc ; and makes recommendations to the government and other public bodies in the interest of the cashew industry.

Proper care is taken to maintain high quality standards for the cashew kernel that are exported. The Export Inspection Agency (EIA) is engaged in inculcating quality consciousness in the cashew industry and ensuring the Indian cashews retain their natural flavour and food value. The nuts are successfully roasted, shelled, peeled and graded into 25 different categories according to the size, colour and other characteristics of the whole cashews, splits, brokens, bits etc. For bulk exports cashews are packed into seamless, metallic containers. After the containers are filled with kernel, the air is exhausted from them and replaced with carbon dioxide. To ensure that only cashews of approved standards are exported, a system of compulsory pre-shipment inspection is also in force.

For utilisation of cashew apple on a wider scale, the Central Food Technological Research Institute, Mysore, has worked out details of large scale production of cashew apple wine, juice etc.

The U.S.A. is the largest importer of cashew kernel, taking about 50 per cent of all imports. From 15,700 metric tons in 1948 the U.S. imports of cashew increased to about 51,000 m.t. in 1976, but declined considerably by 1977 due to high prices and attendant consumer resistance. Next comes the U.S.S.R. with an initial import of 2,000 m.t. in 1957 which steadily rose to 32,000 m.t. in 1974. The other important markets are Canada, Japan, U.K., Australia and the Federal Republic of Germany. Cashew kernel is exported from India to 60 countries.

The buyers of shell liquid are Japan, Korea Republic, U.K. and U.S.A. In 1980 Japan bought 3637, Korea Republic 671, U.K. 2147 and U.S.A. 2919 metric tons of shell liquid from India. ☐

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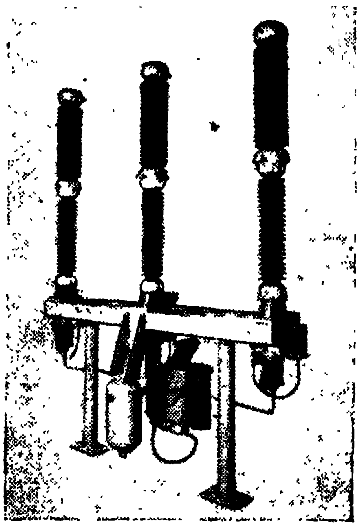

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Workers Education: An Appraisal

Amar Nath Rai*

THE NEED to educate industrial workers in order to enable them to take effective part in the production processes and development of the country, was recognised as far back as 1956 when the Government made a modest provision of funds for a pilot scheme of workers education in the Second Five Year Plan in 1957. Government constituted an expert committee to formuate a comprehensive scheme for workers education. The recommendations of the committee were endorsed by the 15th session of the Indian Labour Conference. This constitutes the touchstone of the workers education scheme now being implemented throughout the country by the Central Board for Workers Education, established in September, 1958.

Workers education scheme aims at equipping all sections of workers for their intelligent participation in social and economic development of the nation, developing among them a greater understanding of the problems of their social and economic environment and their responsibilities, developing leadership from among their rank and file, developing strong, united and more responsible trade unions, strengthening democratic processes and traditions in the trade union movement and enabling trade unions themselves to take over ultimately the functions of workers education.

Training of worker-teachers and workers (1958-80)

Plan	Worker-Teachers	Workers trained in: Unit level classes	Short term programmes	Rural workers education	Small scale sector	By grantees
1	2	3	4	5	6	7
Second Plan (1956–61)	1070	9070	..	..	..	..
Third Plan (1961–66)	6340	309470	..	..	..	2371
Annual Plans (1966–69)	9055	419823	105975	..	..	9187
Fourth Pan (1969–74)	14856	802394	307591	..	..	72987
Fifth Plan (1974–78)	15166	720458	485594	6214	..	110393
1978–79	3955	213677	91306	7386	..	25417
1979–80	3927	185891	38563	17671	5241	25911
Total	54369	2660783	1029029	31271	5241	246266

Three-Tier System

Workers education programme is a three-tier system consisting of national level training of education officers, regional level training of worker-teachers and unit level training of workers. Indian Institute of Workers Education, Bombay, established by the Central Board for Workers Education in 1970 conducts national level courses for training of trade union officials and education officers of the Board and serves as a demonstration and information centre. The Board extended its programme for workers in small scale and unorganised sectors from October 1, 1979. This training programme is need based, residential and of five-day full-time duration. By March 1980 as many as 139 courses were conducted to train 5,241 workers. Programmes for rural workers were also identified and as many as 244 five-day and 200 two-day camps were conducted at the block and village level throughout the country. Board's Functional Adult Literacy Programme was also implemented and by March 1980 there were 663 classes in session were of which 256, in plantations and 155 in mining areas. All the unit level classes in plantation and mining areas have been converted into six-month workers education functional adult literacy classes.

Since inception, the Board had so far trained 54,369 worker teachers and 26,60,783 workers in unit level classes and 10,29,029 workers were trained in camps for rural workers and 5,241 workers were trained in handloom, small scale and unorganised sector, while 24,62,66 workers participated in the programmes organised by grantees. At the end of March, 1980, there were 41 regional centres. Planwise details of the training programmes conducted by the Board are given in the table.

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*Freelance Writer

The grant-in-aid scheme of the Board designed to help trade union organisations to conduct workers education programme for their members has been in operation since 1960. During the last two decades, the procedure for receiving grants and its scope has been liberalised to a great extent enabling large number of trade union organisations to avail of this facility. By March 1980 altogether 978 trade union organisations were granted Rs. 35,42,097 and in turn, they had trained 24,61,266 workers.

Needs New Direction

However, despite pioneering work done by the Board in the field there had been visibly no significant impact of the scheme so far either on the workers or the society. Scheme needs new direction, besides expanding its scope. It should cover casual workers and job seekers abroad. So far, the workers education has been concentrating on educating the workers on the importance of improving their wages and working conditions but not much had been done in educating them about the improving the standard of living within the pay packet or improving the quality of life by avoidance of wasteful or harmful expenditure. Education should cover environmental and personal hygiene, physical fitness including yoga and national discipline. The Board wil be well advised to take up such co-educational programmes for a simultaneous education of workers and employees for the purpose of ensuring harmonious industrial relations leading to ever-increasing productivity. Furthermore, workers education programme should aim at preparing the workers for their new role arising out of participative management and joint decision making. Once this system becomes a reality the whole character of industrial relations would undergo a revolutionary change and then the workers would not be found lacking in ability to fulfil their responsibilities. Lastly, as the veteran trade union leader and Chairman of the Central Board for Workers Education Shri G. Ramanujam has underscored, workers education should teach them about their obligations also. Till now the emphasis had been on the rights of the workmen and their trade unions. Labour should do the house-keeping for the nation. They should learn to share the fruits of labour along with the entire community. They should be educated and convinced how avoidable work stoppages had harmed the workers and the industry and retarded the progress of the nations. Sharing of prosperity should not only be between labour and management but also with the community which is the third party but a very dominant party, unfortunately hitherto totally neglected. There is no place for conflict of interests so far as increase in prosperity is concerned and, therefore, nothing should be done to disrupt production or undermine productivity. This calls for creating a new culture in industrial relations. Workers education programme should underline these noble aspects of industrial life.

The aims and objectives of the workers education programmes can be successfully attained only when there is close cooperation among the Centre, the States, Workers Education Board, educational bodies, labour institutes, training institutes, trade unions and employers. Thus this programme can definitely contribute significantly to our nation-building endeavour. ☐

Workers Participation to be Implemented

INAUGURATING the national seminar on "Making Participation Work" in New Delhi recently Shri Narayan Datt Tiwari, Minister for Planning and Labour said that the Government was determined to make workers' participation a success which was enshrined in the Constitution and formed an essential element of the 20-Point Economic Programme.

But there was difficulty in selecting the representatives of the workers to be associated with management; as there was no unanimity among the trade union leaders whether the recognised union should be authorised to nominate the persons, he added. He further said that the managements on their part were reluctant to share information with workers on the ground that they might misuse such information. He said, "The Management must accept workers as an essential part of the productive system and seek their confidence and cooperation in improving industrial performance.

Nucleus Plants

SEVERAL States have reacted favourably to the Union Minister of State for Industry, Dr. Charanjit Chanana's proposal of setting up "nucleus plants" in selected backward areas. Already, 30 districts have been identified by the State Governments for setting up such plants. The nucleus plant programme seeks to promote structurally integrated industrialisation in a backward district on the basis of techno-economic assessment of its resources and their exploitation in a manner to benefit the largest number of ancillary units. For speeding up development of backward areas, 247 districts have been declared eligible to concessional finance from central financial institutions. In order to promote dispersal growth of small-scale industries, especially in backward areas, the nucleus plant will take advantage of the available facilities under the on-going programmes. ☐

Warananagar :

A Unique Cooperative Endeavour

Warananagar is a wonderful show-piece in cooperation and rural integrated development. Its builder, Shri Tatya Saheb Kore, draws inspiration from the most revered saint of Maharashtra, Sant Tukaram, who had said, "Let us cooperate with one another, let us follow the right path."

R. R. Vaish*

Cooperatives have been mostly organised by Cooperative Departments and they function as government departments only. The impact of cooperatives on rural life is hardly visible in rural areas. But cooperative movement in Warananagar definitely stands apart from cooperatives in other parts of the country. Situated at about 20 miles from the city of Kolhapur in Maharashtra state, Warananagar has achieved tremendous economic development within a period of 20 years, improved the lot of the poorest in rather unbelievably short time and is now striving towards improving the quality of life through a well developed cooperative system, established with people's own initiative. The whole set up at Warananagar has lent dignity to human life, talent and labour and one can see contented and smiling faces all round this small sugar town.

Yet this was the area where two or three decades ago way-laying, dacoity, theft, and murder was an everyday happening. Moved by the appalling poverty and ignorance of his fellow brethern, Shri Tatya Saheb Kore, a local agriculturist and accountant in a local cooperative credit society and now popularly known as *Sahakar Maharishi* in Maharashtra, decided to work for the improvement of his people's lot. He chose a cooperative sugar factory as the instrument of change.

He collected Rs. 10 lakh as share money from poor farmers in villages around Warananagar. A cooperative was formed with a contribution of equal amount as share money by the Government of Maharashtra. This happened in March, 1956. Sugar production started in November 1959. The entire share capital of Rs. 10 lakh was paid back to the Government by March 1977, by Warana Sahkari Sakhar Karkhana Ltd. A loan of about Rs. 2 crore was also fully repaid by 1978. The Karkhana, side by side, built up a vast complex comprising a Workers' Colony, well laid out roads lined with tall trees, a prestigeous office building, a modern auditorium; a dispensary and a small hospital with 10 beds; a primary school, a high school with a hostel, a degree college imparting education in arts, sciences and commerce and having well equipped laboratories and a spacious hostel to which is also attached a sugarcane farm; a cooperative consumer store established with an investment of Rs. 20 lakh and spread over 12400 sq. feet (it has a target of 1.5 crores of turnover in the early years annually). There is a beautiful orchestra of children whose ages range between 4 and 16 years. The orchestra has earned fame inside as well outside the country.

A cooperative credit bank, a cooperative dairy plant installed with an investment of Rs. 2.5 crore and two modern poultry farms are helping people in 66 villages around Warananagar in providing gainful employment and increasing their incomes.

Creation of these economic and social assets was made possible by adopting latest technology for production of sugar, inducing farmers to grow good quality cane and efficient management of the Karkhana. The high rate of recovery of sugar is a sufficient indicator. The Karkhana attained a recovery rate of 12.38 per cent in 1977-78. It was not only highest in the state of Maharashtra but in whole of India. Its output of sugar totalled 5 lakh quintals of sugar and gross receipts amounted to more than Rs. 9.6 crore in that year. Shri Tatyasaheb Kore, the Chairman of the Board of Directors, has a knack of selecting right personnel for every unit in Warananagar and is adept at formulating economically viable plans. In this task he is assisted by capable managers and trusted members of various boards which are manned by simple village farmers and kamgars. He discusses technology of sugar production, among other things, with sharp business shrewdness though not highly educated himself.

But the sakhar karkhana could help not more than 30 per cent of households in the 66 villages and poverty continued to afflict a large section of population. Therefore, he had to think of dairy plant and poultry farms. The dairy plant supplies milk to Bombay in its own tankers. It also produces milk powder, butter and ghee. The poultry farms supply eggs to Bombay and other cities and help in improving and supplying good breeds of birds to households in villages. Control of diseases is also done under expert supervision. Both these activities have almost entirely covered the village population and every household is assured of a reasonable income as marketing is the total responsibility of these cooperatives alongwith supplies of good feed. Once as many as 17000 birds died due to leucosis epidemic in villages. The cooperative poultry farms fully compensated the poultry farmers. This loss of Rs. 2.5 lakh was fully recouped within a period of 3 years from its own profits. These farms, among the best in the country, are the most modernised and well looked after by first rate experts. Kore Saheb aims at raising the income of even a landless household to Rs. 10,000 per year in near future through these activities.

Warananagar has also a plan to establish a 100-bed hospital (eventually to be expanded to 1000 beds). It will be fully equipped and will employ specialists for all major diseases. Mahatma Gandhi Memorial Medical Trust has already been formed for this purpose.

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*Agricultural Economics Research Centre, University of Delhi.

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What Warananagar complex presents today is a complete picture of rural integrated development and total adoption of cooperative management techniques in all spheres. Its multifarious activities are leading its population towards a rich life both economically and culturally. There is an all pervading air of enthusiasm and inspiration to do good work. Certain basic values lie at the root of this whole process of transformation.

Detailed discussions precede the establishment of any new unit. Projects are executed with thoroughness—financially and technically. Lakhs of rupees are collected within two or three days of announcement of a new project. Excellent standards are maintained. Economy is effected by every means and every effort made to avoid wastes. The office building of the Karkhana, called *Warana Shetkari* (agriculturist) has been built in such a way that during day time, even if it is a cloudy day, office rooms-including that of the Managing Director—do not require electric light. Waste water from the sugar factory, college and school hostels and residential quarters is used for fields, kitchen gardens and orchards.

The Karkhana is concerned with the purchase of sugarcane, manufacture of sugar and distribution of profits to share holders. The Agricultural Department of the factory supplies good quality seeds, fertilisers, pesticides and credit for all agricultural purposes and hires out tractors for timely sowing and pumping sets for irrigation. It's staff sees to it that all farmers get highest per unit output of sugarcane. In some cases even advance payment is made against promises of minimum supply of cane. No cane arrears are due to farmers. In fact, achievement at Warananagar exceed the imagination of the boldest planners. Once while Government of Maharashtra planned to bring additional 1000 acres of sugarcane growing area under improved methods the Karkhana insisted on raising the target to 3000 acres. When 41 acres of land was given to the landless by the government this Karkhana carried out ploughing operations free and also supplied fertilisers and seeds free of cost. In late sixties Warananagar felt an acute shortage of water. A jackwell at Panchanga river was sunk in very short time. A 15-mile long pipeline brought water to the factory. In 1978 the factory constructed Chawdre Dam within a period of three months. These and similar capital projects have cost the factory more than 30 lakhs rupees.

The Warana Sahkari Bank established in 1966 grants loans amounting to rupees 60 lakh a year. Loans are provided for setting up poultry farms, purchase of cattle, improvement of land, installation of irrigation sources, pursuit of higher education as also for small businesses. All the sixtysix villages are covered by this Bank.

The story of cooperative dairy plant and poultry farms is likewise enchanting. More than 50,000 families are benefitting from these schemes. In fact the whole effort has been planned in such a way that farmers have never to go out for any problem concerning their poultry farms or dairies. Supply of seed, protection against diseases and marketing—all functions are performed by the cooperatives. The farmer is left to attend to production job exclusively. The dairy plant was established at a total cost of Rs. 2.56 crores and is known as Amritnagar.

Maximum employment to local young men and women is another remarkable feature of economic development in Warananagar. There is a centre for making *lizzat papads*. A woman can easily earn three to five rupees per day, utilising her spare time at home. Another ambitious scheme, envisaged supply of sewing machines to housewives alongwith cutpieces of cloth, to be purchased directly from cloth mills, for making garments for marketing in big and small towns.

Social welfare schemes form an essential part of life in Warananagar. The dispensary, actually a small nursing home with 10 bed facility functions efficiently with funds provided by the Karkhana. There is also a maternity centre. The Kamgar Kalyan Mandal also makes arranagement for treatment outside the district. A well laid out residential colony provides good housing with kitchen gardens, for which the gardeners of the Karkhana give regular service. Electricity and water are also supplied free upto a certain amount of units so that residents may use them economically. The colony is well laid out with roads and trees. Women are told to exercise their authority in controlling family budgets and check their menfolk from ruining money on liquor. The Karkhana has liberally donated to the Prime Minister's Relief Fund, Chief Minister's Relief Fund and other funds during times of calamity. It has also invested large funds in national defence saving schemes.

A contented and healthy life also requires ample opportunities for development of human personality. These are not lacking in Warananagar. There is a well laid out park for children. There is also an Akhara for training wrestlers. Nutritious food is provided to trainees at nominal cost. Factory workers learn and participate in folk and devotional music in the evenings.

A high school is run on the lines of a *gurukul*. The Principal keeps in touch with the students individually. Students are required to finish their home work immediately after classes are over in the school itself.

Thus, this 'Koreland' is a wonderful show-piece in cooperation and rural integrated development. It's builder, Shri Tatya Saheb Kore, draws inspiration from the most revered saint of Maharashtra, Sant Tukaram, who had said "Let us cooperate with one another, let us follow the right path." Tukaram's statue in white marble has been installed midway of stairs leading to first floor of 'Warana Shetkari' which truly symbolises the prosperity and beauty of Warananagar. It is just not an office building, but a real forum for farmers. In the circular marble corridor farmers conduct their business with the Karkhana. They have free access to offices of the Managing Director and the Chairman. □

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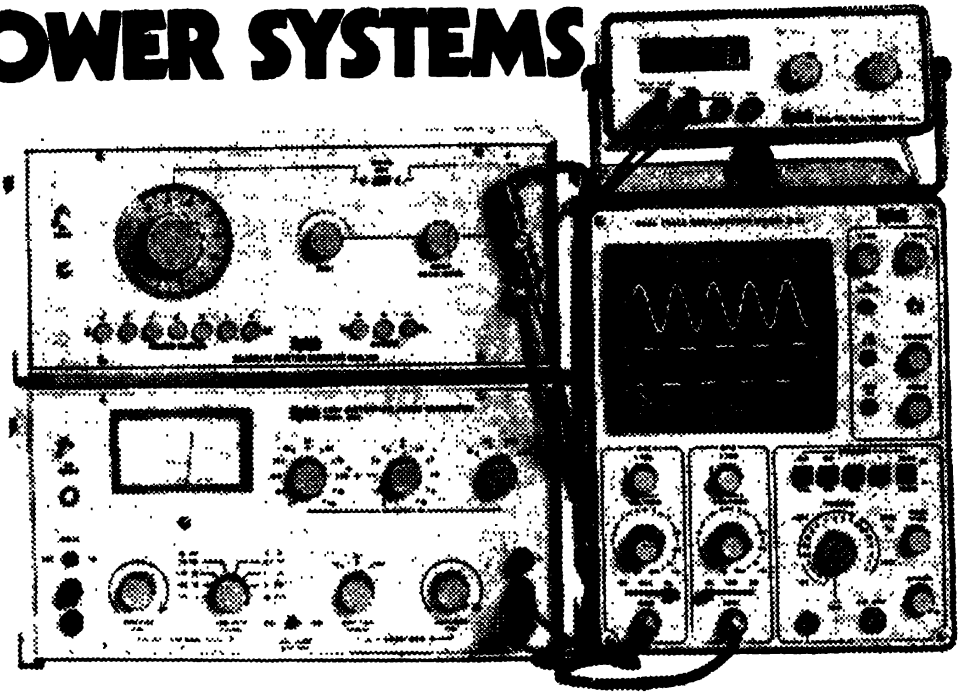

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Public Sector Management

L.K.Jha*

Public sector management has been under fire time and again because of the low returns, not to speak of the losses, that many enterprises have shown and more recently on account of the low productivity and poor performance, particularly of the infra-structural industries like power, rail transport and coal. Some of this criticism is motivated with a view to propound the superiority of private ownership over public ownership. But ways of improving public sector management require careful and objective consideration of all those who are interested in the public sector or are concerned with way of improving the performance of the economy as a whole.

Often the focus of discussion on this issue has been mainly on the personnel policy. The point has been repeatedly made that there are too many bureaucrats holding top managerial posts. While I would agree that in many respects the mental make-up of most civil servants is different from that of a manager, I would also add in the same breath that a really good administrator could well be a good manager as well.

Fix Targets

In any serious attempt to identify the causes underlying poor management of many public sector units. we must look at the system in its entirety and not try to pick on a few odds failings which catch the eye or are highlighted in the press. The first requisite of sound management is that the goals or targets of the enterprise should be clearly defined. A great deal of fuzziness has crept into this area because of the statement, which I believe Pandit Nehru himself made, that the public sector is not actuated by the profit motive. What this means is that in choosing the areas of public sector investment, preference is not given to fields where profit expectations are the highest. Investments in the infrastructure or in machine building industries cannot give the kind of dividends that, say, the production of synthetic fibres or manufacture of cigarettes can. It is the contribution to the economy as a whole, in terms of making it self-reliant and raising rate of growth, that has been much more important than expectations regarding the rate of return on the capital employed when making investment decisions.

However, it would be wholly erroneous, starting from this premise, to jump to the conclusion that the management is under no obligation to earn profit. The time has come when there must be a clear declaration that managers of public sector enterprises will be judged by their ability to earn profits ; it would even be desirable to fix for each unit, having regard to its circumstances, some kind of a norm of profitability, for the management to aim at.

Side by side, there must be time-bound performance targets. Many units which are working far below capacity may need a phased programme for coming up to scratch. Where losses or low profits are the result of shortfalls in production, a price hike to make good profits would not be justified. Profitability targets have to be linked with performance targets.

If there are any other goals which the management is expected to attain, they should also be clearly spelt out. Of course it will have to be ensured that the targets are within the realm of feasibilty and there is a mutual consistency between them. The requirement to earn profits cannot be super-imposed by any direction on the price front which results in selling below costs. Where Governments felt that the sale of some products or to some class of consumers should be subsidised, they should assume the responsibilty for it themselves, or separtely provide funds to the enterprise to defray the cost.

Give Autonomy

Once the task has been clearly defined, the management must be given the requisite degree of freedom to act and to decide on its own. One weakness in the management of the public sector is that almost every decision of any consequence is taken at the highest possible level, most often not even by the Board of Directors but only after examination by the Government. As a result doubts and queries at different levels of the bureaucracy or different departments of the Government have to be satisfied before action can be taken. This not only results in delays but also means that the management neither feels responsible nor can be held responsible for any failures, since the decisions are not taken by it but are handed down to it from levels with which it has no direct communication. There has also been an unfortunate tradition, at least in the past, on the part of audit and parliamentary committees to judge the performance of the management not in terms of results achieved but the propriety of the procedures adopted.

Yet another weakness which I detect in public sector undertakings is of an organisational character. Many public sector undertakings are too huge for effective management and control, and even within the enterprise decision making is excessively centralised. The tendency to place a cluster of undertakings engaged in similar activities under one Board of Directors and one management has resulted in loss of efficiency. At times it is difficult to detect what is going wrong and where. Banks, when they were nationalised, retained their identity and in general I believe gave better service to their customers without the kind of dislocation and problems which followed the nationalisaion of life insurance and the merger of all companies into one mammoth corporation. In regard to food, coal and some other products, consideration could well be given either to splitting up the concerned corporations or to establishing compact managerial units under the corporations whose performance can be watched and evaluated in a more meaningful manner.

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* Chairman of Economic Reforms Commission. These are Excerpts from his convocation address at Xavier Labour Institute, Jamshedpur on March 7.

The plea I have made for greater devolution of authority to the management of public sector enterprises carries with it the corollary that there should be appropriate arrangements for keeping a watch on performance. It would not do to discover only at the end of the year when the balance sheet is presented that the enterprise has been running at a loss, or to wait till power cuts afflict the community to learn that the electricity undertakings are not doing their job propertly. Some key indicators of performance have to be identified. A system of concurrent reporting on performance has to be established. Whenever or wherever any weakness seems to develop and persist, trouble shooters can be sent down to diagnose the malady and prescribe the right remedies for it.

But otherwise public sector undertakings had better remain at arm's length from Government, maintaining their own distinct identity. One of the advantages which would follow would be that differences and disputes between management and labour can be dealt with by Government objectively as Government, while today labour problems of the public sector become issues between labour and the Government with many undersirable consequences. □

Bharat Electronics Ltd.

BHARAT Electronics Limited was set up in 1954 in Bangalore, as a Government of India enterprise under the Ministry of Defence, in collaboration with CSF (now Thomson CSF) France, to manufacture equipment for the defence services. The design and know-how was foreign and the components imported. Over the last 26 years it has grown into a giant national enterprise. Now it has six production divisions in its Bangalore Complex, a unit at Ghaziabad (UP) and another at Pune (Maharashtra). A fourth unit to manufacture Glass Shells for TV Picture Tubes is to be set up, near Bombay.

Over the years the product range has increased from only two to about 400 items of a diverse and complex range. They include professional grade equipment like HF, VHF, UHF and microwave communication equipment, surveillance and secondary weapon and control radars for the three wings of services, Broadcast and TV Transmitters and associated Studio Equipment and gun control equipment for tanks. The components product range includes receiving tubes, TV Picture Tubes, semi-conductors, hybrid micro-circuits, capacitors, crystals, x-ray tubes, microwave tubes, transmitting tubes, integrated circuits and night vision devices.

The possession of expertise in a wide range of radio communication equipment has led to BEL's involvement in the field of communication systems engineering. It has already completed two turn-key communication projects for IOC and Tamil Nadu Police. Other similar turn-key projects are under execution or in an advanced stage of planning.

In the initial stages BEL was forced to enter into several know-how agreements with various companies. But, over the years it has achieved self-reliance in design capability and a majority of its products now are the result of its own efforts in design and development.

BEL has established facilities for quality and reliability and environmental testing under the Quality Assurance Division. Over Rs. 20 million have been invested in a modern testing and environmental laboratory capable of putting to severe tests tiny electronic devices to large radars mounted on trailers. Its quality management system has been established, after a thorough study of similar systems abroad. It is the only one of its kind in the country. Testing facilities are available to certify equipment to international specifications like IEC, DEF, MIL and national standards like JSS. BEL has been recognised as an approved test house by Electronic Components Standards Organisation, Ministry of Defence. These facilities are used by other organisations such as ISRO, HAL, BHEL, NGEF, ITI, ADE, P&T, etc.

Because of its rigid conformity to international specifications, high degree of sophistication and the use of state-of-the art technique in the manufacture of its products BEL has bagged export orders from over 40 countries. Out of a total turnover of Rs. 797 millions in 1979-80 Rs. 45 million worth of products were exported. BEL has won several awards for its outstanding export performance. It has won the Engineering Export Promotion Council award (Southern region) for three years in succession.

Family Welfare

Nation's Welfare

CORRECTION

IN our issue dated 16-30 April 1981, the continuation of the article "Increasing Employment in Agricultural Sector" from page 19 has been given on page 21 instead of page 20 and the article concludes on page 20. The inconvenience caused to our readers is regretted.

—Editor

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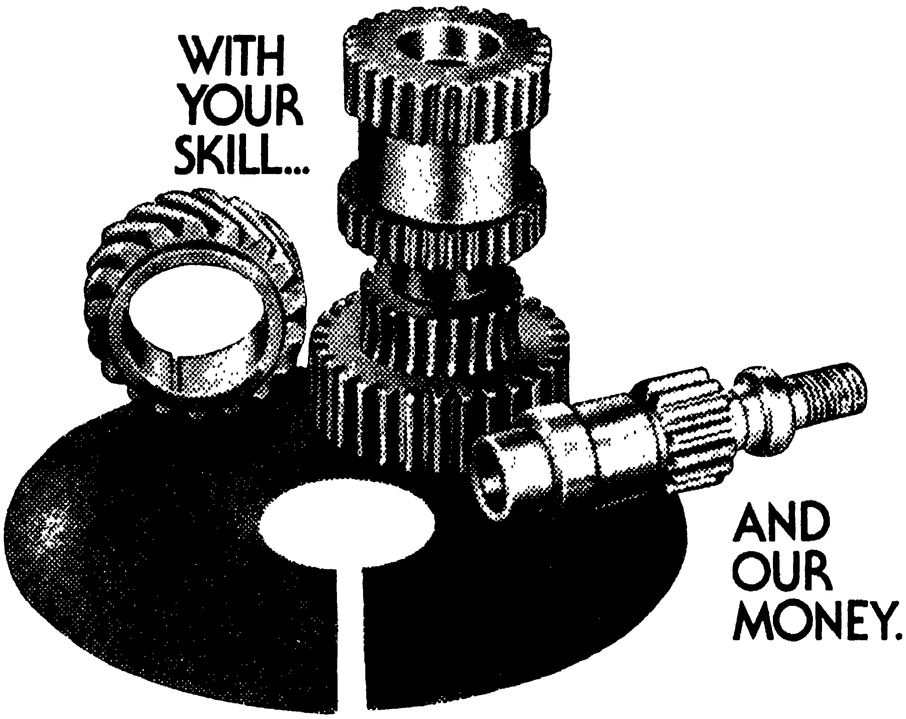

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Utilization of Mineral and Metallurgical Wastes

P.K. Jena*

AROUND 4000 B.C., man accidentally invented the art of making copper metal by heating certain bright blue stones in charocal fire and this brought the metal age in human civilization by bidding farewell to the stone age. Since then man has been making constant efforts to locate various ores and minerals, mining and beneficiating those for producing metals, alloys, refractories and chemicals. At the advent of civilisation starting with limited use of metals and alloys for making a few hunting and agricultural implements, the human being today has been using extensively many metals, a large number of special alloys and refractories for producing a spectrum of domestic and engineering goods including supersonic jets, sophisticated electronic equipments and space crafts.

Due to limited sources of various minerals and metals it is imperative that they are used judiously.

Within a span of 6,000 years of our civilisation and, with 2/3rd of the nations still being on the threshold of industrialisation, man has already consumed a substantial portion of high grade ores and minerals of this good earth. Though some of the developing countries like India are now consuming very less amount of ores and minerals compared to the developed countries, yet because of rapid industrialisation of these countries as well as further economic growth of the developed ones, the cosumption of these non-renewable resources will be colossal during the years ahead.

No doubt in the case of iron ore and bauxite, India's reserve is quite sizeable, but if we consider our future consumption pattern these may not last for more than 100 years. The manganese and chromite ores may last for about 50 years. As regards other ores and minerals of copper, titanium, vanadium, tungsten, nickel, cobalt, zinc and lead, the position is still precarious. With respect to coking coal, we have already consumed a considerable amount of our reserves and we are not very far from the days of crisis unless some alternate sources are established. In view of this, It is very essential that from now onwards we should be very much vigilant and speedily implement our plans in exploring and locating more and more new resources and simultaneously conserving and judiciously utilising the proved ones.

Low Grade Ore

It is very necessary that while exploiting the high grade ores and minerals for extracting metals and alloys, the low grade ores should be preserved at the mine site or if possible should be blended with the high grade ones. This is being practised at present in most of the developed countries, but unfortunately in many of the developing countries the mining of minerals has been very unscientific resulting in wastage of lead ores as well as high grade ore fines. In recent years, huge plants have been set up in advanced countries to agglomerate the ore fines with or without beneficiation so that these could be suitably used for metal extraction and refractory purposes.

In recent years, efforts are being made in some countries to acid or alkali leach the low grade ores at the mine site in order to bring down the operational and transport cost and to avoid ore storage and disposal of mill tailings. Some of the established processes are solution mining of salt and the underground leaching of ore in conjunction with underground mining. Recently leaching of uranium and copper ores has been carried out in large scale in some developed countries like Canada, USA and UK using bacteria.

Mineral Wastes

Till recent past, most of the nickel produced in the world was from the sulphide ores. But the reserve of nickel in the form of oxide and silicate in the earth though comparatively in dilute form is about 80 per cent of its total reserve. As the demand of nickel and its alloys is increasing day by day and the sulphide deposits are being fast depleted off, it has become necessary to develop processes for extraction of nickel and cobalt from oxidic and silicate ores. In this regard a lot of effort has been made in various countries, where some economic processes have been developed. While conserving and properly utilizing both high and low grade ores and minerals, equal emphasis should also be given for increasing the efficiency of extraction process for various metals and alloys in the metallurgical industries and also utilizing the by-products and wastes to recover various metal values.

In an iron and steel plant a lot of coke breeze, ore fines and scraps are generated. The ore fines and the coke breeze now-a-days are being used invariably in making iron ore sinters which are used as a charge in the blast furnace. The iron and steel scraps produced in the form of skuls, runner, tundish, defectives, etc. in iron making and steel melting shops are generally recycled in modern steel plants. The mill scale is also used along with scrap which are charged into steel

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*Director, Regional Research Laboratory, Bhubaneswar.

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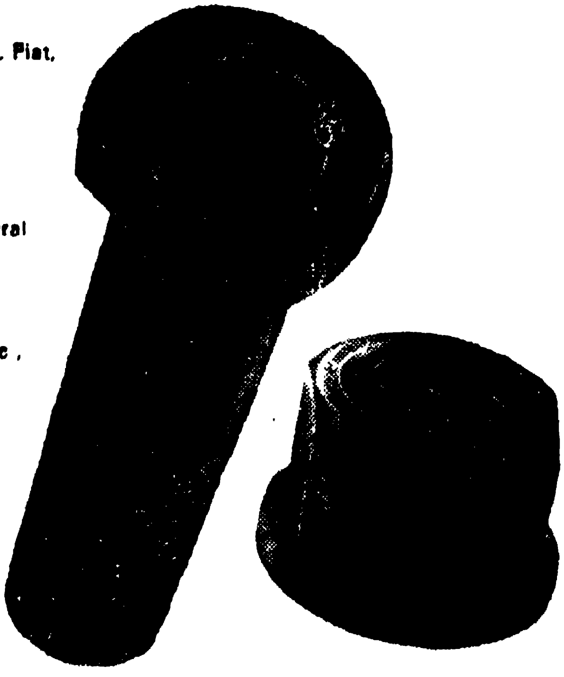

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making furnaces. The blast furnace slag is being used for making cement. The slag obtained from the open hearth and L.D. steel making shops, contains a considerable amount of phosphorous which is being now-a-days processed and used as fertilisers.

Red Mud

During the processing of bauxite, in the alumina and aluminium industries, a considerable amount of titanium and iron present in the ore goes into the solid residue known as 'red mud' and in some cases a substantial amount of vanadium goes into the sludge. Commercial processes have been developed to recover vanadium from sludge and in some countries this has become one of the important sources of this metal. All over the world, effort are being made to have maximum utilisation of red mud in cement industry, road making and also to recover its titanium value. During casting and fabrication of aluminimum considerable amount of rejects are obtained; in addition to this, increasing amount of secondary scraps are being generated as old utensils, furnitures and machine parts. Systematic efforts should be made to collect these scraps and reuse them after proper melting and refining.

Chalco-pyrite which is the main source of copper very often contains considerable amount of the other valuable metals like nickel, and cobalt. During beneficiation of the ores and subsequent smelting and converting operations, most of these valuable metals along with substantial amount of copper generally go as waste. In recent years, efforts are being made to recover nickel, cobalt and the remaining copper from the tailings of the chalcopyrite beneficieation plants and also from the smelter and converter slags.

In some uranium ore, appreciable amount of molybdenum, vanadium and nickel are associated. During beneficiation and metal extraction, these are obtained as by-products and in many countries including India processes have been developed to recover these metal values from the rejects of uranium metal industry.

Role of R.R.L.

With a view to conserve the ores and minerals and to utilise the mineral and metallurgical wastes and by-products, the scientists in the Regional Research Laboratory, Bhubaneswar are engaged in a number of important projects.

In order to explore the possibility of utilising the low grade ores by suitably upgrading them, some studies on beneficiation of some lowgrade iron ores limestone have been carried out and in some cases the concerned industries have been provided with necessary results and advised accordingly. In view of increasing demand of copper, lead and zinc and with limited reserves of their individual ores, the complex ores of these three metals which have been recently located in some parts of India especially in Gujarat, Rajasthan and Andhra Pradesh are to be utilised for producing these metals. In this regard an all-India coordinated project has been undertaken in my Laboratory and some attractive and less energy consuming processes are being developed for producing copper, lead and zinc.

The requirement of copper, cobalt and nickel in the country is also increasing rapidly and most of them particularly the nickel and cobalt are being imported.

The only nickel reserve of India is found in a low grade lateritic ore which is available near chromite mines of Sukinda, Orissa containing around 1 per cent nickel and 0.05 per cent of cobalt. Some years back RRL had brought to the notice of mine owners that the overburden of the nearby chromite mines which constitute about 6-8 times of chromite reserves also contain around 0.9 per cent nickel. Recently, a process has been developed by us on laboratory scale to extract nickel and cobalt from this ore. At present a joint sudy is being made based on this process by our Laboratory and the National Metallurgical Laboratory, Jamshedpur.

With a view to conserving precious ores and minerals and also utilizing the mineral and metallurgical wastes and by-products, the scientists attached to the Regional Research Laboratory at Bhubaneswar are engaged in a number of important projects.

Ore Fines

Due to mechanised mining and fragible nature of many ores, a lot of ore fines are generated during mining. A process has been developed to sinter these ore fines suitably for their application in metallurgical and refractory industries. Based on the technology developed by us, a pilot plant on agglomerating iron ore fines through pan sintering with a capacity of 50-60 tonnes per day and with complete engineering knowhow, has been set up at Kalinga Iron Works, Orissa and the plant is producing very good iron ore sinters for the last two years. Similar plants for pan sintering of maganese and chromite ore fines are being set up with our technical assistance in different parts of the country. Manganese ore sinters thus produced have been found to be as good as lumpy manganese ores for ferro-manganese production. Efforts have successfully been made to agglomerate the charcoal fines which are obtained as a waste material of the ferro alloy industries. Recently, another know-how has been developed by us on upgrading of carbon content of coke breeze from around 65 per cent to 80 per cent. The coke breeze is a metallurgical waste produced in large quantity in steel, alloy and other metallurgical plants.

In addition to this, processes have also been developed in many laboratories for recovering zinc and lead from the wastes of Udaipur Zinc Plant. However, some of these processes which have been developed on Laboratory or bench scale, need to be carried out on pilot scale for assessing the techno-economic viability. If these processes could be implemented commercially it would save the wastage of huge quantity of metal values in the rejects of metallurgical plants.

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Home Away From Home

Residents of Pakhaijore waiting to welcome visitory to the Krishak Sammelan

S.N. Bhattacharyya*

THE Government have made efforts to rehabilitate East Bengal Refugees in the Andamans, Karnataka, Gujarat, Uttar Pradesh and Bihar. Dandakaranya, a massive rehabilitation project in Orissa and Madhya Pradesh is doing its best to settle them. They are undoubtedly taking roots in the Madhya Pradesh part of the Dandakaranya Project.

Koraput in Orissa and Bastar in Madhya Pradesh form, as the legend goes, part of Dandakaranya of Ramayana fame. Here, Rama, Lakshman and Sita spent some time of their exile period and stories and folklore are galore.

DNK project, as Dandakaranya scheme in short is known, has four major components. Narayanpur and Parelkote, both in Madhya Pradesh and Amarkot and Malkangiri in Orissa. Pakhanjore is in the Adivasi district of Bastar in Narayanpur Tehsil in Madhya Pradesh. Resettlement work started here in 1960 and about 30,000 refugees have been settled in this Tehsil. Settlers in the initial stage were lucky to get the benefit of a Japanese team of experts, who demonstrated modern techniques of agriculture particularly line sowing in paddy cultivation. More important, they tapped the available water resources for cultivation in this rainfed area with no irrigation facilities. With typical Japanese meticulousness, they did a wonderful job in water-harvesting so that not a drop is wasted.

Rainfall is around 50", that also concentrated in two months—June and July. Springs and rivulets overflow, but the Japanese experts had seen to it that water doesn't go waste. The excess water is preserved in small reservoirs in the lower parts of the land—catchment area—from where it is drained to the paddy fields through small channels. The Japanese team came around 1963-64 as per agreement with the Government of India. It consisted of agricultural experts in various fields like soil conservation, agricultural engineering, agronomy, soil science, plant pathology, plant protection, etc. The agronomists popularised package of practices after the hilly terrain was levelled and soil prepared with Japanese machines and tools. About 20 experts worked hard and when they left, the miniature workshop was handed over to the DNK. The Japanese experts have left, but their tremendous impact is very much visible.

Agricultural experts with the DNK project worked day and night and upturned the virgin soil. Its extension agency, particularly the grass-root workers, the Sevaks, equivalent to Gram Sevaks in the Community Development Blocks, worked as a team of dedicated workers. Soon 20,000 acres of land was brought under tank irrigation and agricultural operation started in right earnest.

Very few of us know that paddy yield per hectare in Pakhanjore is the highest in India—40 qtls.—as against the all-India average of 14 qtls. The figure was given by the Area Agronomist. Punjab can boast of 29 qtls. And there is no good irrigation system in Pakhanjore as in the Punjab. Nor is there extensive double cropping as many rice producing areas have.

Seed is treated scientifically in drums introduced by the Japanese. Seed dribblers are also used and broadcast method is now a thing of the past. Not only line sowing, but the high yield variety coupled with 100 per cent coverage of the cultivated land achieved this miraculous feat. Use of fertiliser—a pre-requisite for intensive cultivation is about 30 kg. of IFFCO's NPK—12 : 32 : 16 per hectare is an achievement by itself when the district average is only 1.5 kg. Strains of new summer paddy seeds have been developed and, in some areas, demonstrated with success. Once this is worked out successfully and adequate irrigation facility is provided, settlement villages are likely to be as prosperous as any in the country.

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* Consultant (P R), IFFCO.

Each family of refugees got about 5 acres of land. In the beginning they also got milch cows and bullocks for ploughing, together with country ploughs. Some cash was also given as loans for purchase of fertiliser seeds and pesticides.

Homestead of refugees consists of asbestoes and tin sheds with a few mud huts later added, in roughly 1/10th of an acre of land. Pumpkin and Ashgourd creepers decorate sheds. Other vegetables are also grown almost all the year round. Banana plants on the banks of tanks or behind kitchen, where waste water is drained are being grown in plenty in all their greenery.

'Krishak Sammelan' was held in the last week of February, 1981, where about 70 settlers, including a dozen ladies, participated. This was organised by the Indian Farmers' Fertiliser Cooperative Ltd. which is doing brisk business in fertiliser. In Pakhanjore, in 1978-79, 50 tonnes of IFFCO NPK were sold. The next year it was increased to 80 tonnes and in 1980-81 the figure shot up to 275 MTs. The Sammelan was attended by the agricultural officers of the DNK and progressive farmers also took the opportunity to speak about their problems and successes.

In fact Sunit Mandol's story is a success story for any settler to emulate. Shri Mandol who along with his brother is cultivating 10 acres of land, is known in adjoining district as a progressive agriculturist with a scientific bent of mind. He has made a great success in paddy cultivation and growing pumpkin. He is invited by the Government and non-Government agencies to speak on agricultural practices and latest agricultural techniques He came into limelight at the Paddy Seminar held on Feb. 22, 1980, in Project Village 14 when be spoke like an expert, on Gaalmidge insect pest affecting paddy in the DNK area and suggested that a resistant variety is the only solution. Insecticides have failed to control the pest. 'Could not the Rice Research Institute at Cuttack do something in this line'?, he asked the assembled specialists. In fact this had been his question for the last few years.

If Shri Mandol has been a success with paddy, and, to a lesser degree, with pumpkins, the roll of honour for growing vegetables goes to Shri Haripal Biswas, 58, of Project Village 26, Population 400. A grandfather, he now supervises the work of his son. He joined the settlers much later. In fact he was the last of the Mohicans. As such, he got an unirrigated land, as better lands were already distributed. But he is a typical water-harvester in its true sense. He noticed a seasonal 'nullah'. then dried up, and planned to make it his source of water for the thirsty land. Then came the rainy season. He bounded the 'nullah' and diverted the water to a lower level from where his land could be irrigated. This was done successfully and he raised his first crop of paddy. Not only he, but 5 more families became beneficiaries of his imaginative step.

As a vegetable producer, he is a legendary figure in the area. He studied the system of what agronomists call "relay-cropping of vegetables". He grew potato in his land—an unheard of thing in Dandakaranya—and when it matured, started growing bittergourd, on the same ridge where potato was growing. Cabbage, chillies, snake-gourd, not to speak of pumpkin and ashgourd were also grown in plenty.

Even he cultivated summer maize with whatever water was available. More important, he, alongwith two others, introduced jute cultivation for which East Bengal is famous. This golden fibre, not of course, the best quality but an inferior one, 'Mesta', is grown by the settlers now. This is not for commerical purposes, but for their own use—to make ropes to tie the buffaloes and cows or for hanging clothes.

Are the settlers becoming able to leave an impress on the local people, particularly the adivasies ? The State Bank of India is a lead bank in Bastar district. The bank has earmarked over Rs. 5 crore for agricultural improvement for the adivasies. The following newspaper report apeared in a National Daily on 27-1-1981. "Recently, the Kanker and Jagdalpur branches of the State Bank of India picked up a group of tribal farmers and took them to Pakhanjore for acquainting them with modern methods of paddy cultivation". The very fact that Pakhanjore was selected shows the impact the settlers are making on the local people.

The story of Bangalee settlers would be incomplete without a mention of their intellectual pursuits—of their educational and cultural outlets. Along with their homesteads, they built schools with generous help from DNK. Cultural activities are many-sided. Music and dance grace special occasions, particularly when a visitor visits their home away from home.

Indo-Soviet Planning Protocol

AT the conclusion of the fifth meeting of the Indo-Soviet Planning Group, in New Delhi recently, a protocol was signed by the leaders of Soviet and Indian delegation. The Planning Group has provided an excellent forum for bilateral exchange of planning experience between the two countries.

The photo shows H. E. Prof. A. V. Bachurin, Deputy Chairman, GOSPLAN, Leader of the nine-member Soviet delegation and Dr. Manmohan Singh, Member, Secretary, Planning Commission, leader of the Indian delegation signing the protocol.

RRL Bhubaneswar on the march

THE Regional Research Laboratory, Bhubaneswar, established in 1964 has been undertaking research to harness the mineral and other natural resources of the region.

To reduce the transportation cost of industrial raw materials the laboratory has taken up, during the Fifth Five Year Plan, work on hydraulic transportation of ores and minerals in the pipeline. A sponsored project from a private party on the evaluation of high density polythylene pipes for hydraulic transportation has been successfully completed. In collaboration with Engineers India Limited including financial participation, the Laboratory has been building up pilot plant facilities required for studying various problems associated with slurry transportation system. It is also aimed to generate design data required for designing long distance slurry transportation systems.

The Laboratory carried out pioneering work on pan sintering of various ore fines such as iron, manganese and chromite. Various ores have been tested in the Laboratory. Based on the Laboratory results, a pilot pan sintering plant of 20—30 tonnes per day capacity was set up at Kalinga Iron Works, Barbil, Orissa. The Laboratory has provided process, design and engineering knowhow to set up the plant. The plant is running successfully since May 1978. Encouraged by the success of pan sintering of iron ore fines at the above scale and improved furnace performance using the sinters, Messrs Kalinga Iron Works have already gone ahead with the expansion of the plant to 50—60 tonnes per day in collaboration with RRL (B) and decided to commercialize the pan sintering method for production of iron sinters. Subsequently the Laboratory has undertaken consultancy works for setting up a comercial unit for manganese ore sinters at Ferro Alloys Corporation Limited, Sreeramnagar, Andhra Pradesh.

The Laboratory has developed a process for extraction and recovery of vanadium bearing titaniferous magnetites available in the Mayurbhanj district of Orissa. The Laboratory in collaboration with Engineers India Limited will be providing this indegenous technology to a firm for setting up the Vanadium Plant in Orissa.

The RRL has undertaken an all-India coordinated project on utilization of multimetal complex sulphide ores. Ambamata (Gujarat), Deri (Rajasthan) and other regions have been examined mineralogically and studies have been undertaken of their amenability towards beneficiation and extraction of copper, lead and zinc.

Utilization of waste product

The scientists of the Laboratory discovered that the lateritic overburden material removed during the mining of Saruabil chromite mines contained a good amount of nickel. This nickel bearing overburden material was earlier thrown out as a waste product of mining. Similar work has also been carried out for the overburden material collected from the chromite mines of this ore belonging to the Orissa Mining Corporation, a Government of Orissa undertaking. A process has been developed in the laboratory to extract nickel and cobalt from these overburdens and if commercialised a lot of foreign exchange will be saved.

The Laboratory undertook the production of sponge iron without using coke, oil and natural gas by reducing gases produced from abundantly available non-metallurgical coal. Based on the laboratory trials using producer gas as reductant, a pilot plant of capacity 0.25 tonnes per day sponge iron using water gas has been set up at Central Fuel Research Institute, Dhanbad, jointly by the Scientists of the two laboratories.

In order to replace furnace oil by using low and off grade coal the Laboratory has taken up design and development of a cyclone furnace system where the use of low as well as off grade coal (essentially high ash coal) is visualized. A prototype has been designed and fabricated. Development of such furnaces will make a tremendous impact on consumption of furnace oil as well as bringing economy in metallurgical industries.

During the recent years, the Laboratory has been gaining emphasis on the utilisation of mining and metallurgical wastes and byproducts in collaboration with West German Government.

The RRL Bhubaneswar has created new facilities to carry out research. A continuous roasting facility consisting of rotary dryer, rotary kiln and rotary cooler with reeding system has been set up to carry out reduction/oxidation/calcination steps up to 1100° of ores and minerals, required in process developments. A national test facility consisting of 110 H. P. variable speed motor, 600 meters length, 25 mm, 50 mm, 100 mm and 150 mm nominal dia. test loop is being set up. As a part of augmenting infrastructural facilities in mineral beneficiation, a separate size reduction plant has been created where tonnage material can be studied for crushibility characteristics. The Laboratory has a high pressure are leaching and metal wining facility consisting of four autoclaves of 4 lit. 10 lit. 20 lit. and 50 lit. capacities. These autoclaves can generate pressure upto 550/kg/cm^2 and have provisions for cooling, gas inlet and outlet.

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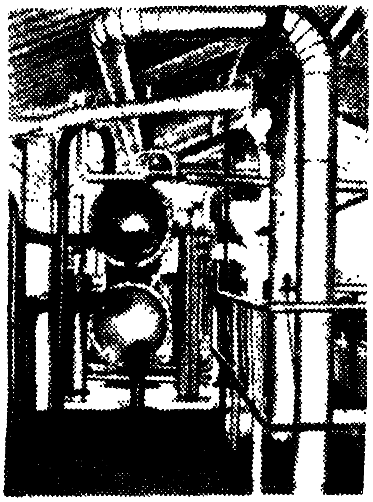

Troika expertise in the oils & fats processing industry, especially solvent extraction process, needs no testimony. Troika personnel, trained and experienced with specific insight in all facets of oils and fats technology spans nearly a quarter of a century.

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Troika technology knows no frontiers. Troika have also installed oil refining units, cattle feed plants modernised and expanded outdated extraction plants and even supplied specially designed equipment for vanaspati plants,

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Cement Corporation of India

THE CEMENT Corporation of India, a public sector undertaking, was incorporated in January, 1965 with the following main objectives :—

(i) To survey, prospect and prove cement grade limestone deposits in the country;
(ii) To set up sufficient manufacturing capacity for the manufacture of cement: and
(iii) To co-ordinate all ancillary and supporting activities connected with the growth of cement industry and development of expertise.

The Corporation has at present nine units/projects all over the country with its Corporate Office at New Delhi. Out of these nine units five are the running plants located at Mandhar and Nayagaon (Madhya Pradesh), Kurkunta (Karnataka), Bokajan (Assam), and Rajban (Himachal Pradesh). The remaining four units are in various stages of construction. Two projects at Akaltara (Madhya Pradesh) and Yerraguntla (Andhra Pradesh) have already started production of cement and clinker respectively and are likely to be commissioned during the current financial year itself. Regarding third project at Adilabad (Andhra Pradesh), major civil works are already over and mechanical erection has started. Pre-construction activities are in full swing at the fourth project at Tandur (Andhra Pradesh).

The present installed capacity of the five cement manufacturing plants is around 14 lakhs tonnes per annum. The remaining four projects now under construction will increase the manufacturing capacity of the Corporation to 36 lakh tonnes per annum on their commissioning. After suffering losses for two successive years the Corporation earned a profit of Rs. 109.5 lakh during 1979-80. This is a sequal to the spectacular improvements made in its operational efficiency recently.

As a public sector enterprise the CCI has to play a key role in meeting the increasing demand of cement in the country. For its own survival, it has to diversify in the field of building materials and has to continuously update the equipment and technology. To achieve these objectives, a Perspective Plan has been drawn up for massive expansion, diversification and modernisation.

Substantial capital outlay has been provided for the CCI in the Sixth Five Year Plan. The World Bank have shown keen interest for associating with CCI after having appreciated the capabilities of the Company.

The CCI has developed a very strong consultancy division for undertaking cement projects on turn key basis—from concept to commissioning. Adilabad and Tandur projects are being handled by the division resulting in a saving of over Rs. 2.5 crores in consultancy fees. Consultancy is being provided to a number of State Governments and departments of Central Government. It is proposed to extend these activities abroad. □

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TRENDS

Hydro-Electric Development

A Cabinet Committee is looking into the question of evolving norms and procedures for payment of adequate compensation to the owners whose land gets submerged as a result of storage reservoirs of hydro-electric and irrigation projects. This was stated by Shri C.C. Patel, Secretary, Union Ministry of Irrigation, while addressing the Seminar on Accelerated Hydro-electric Development in India, organisd in New Delhi recently by the National Hydro-electric Power Corporation in collaboration with the Central Board for Irrigation and Power.

Shri Patel also referred to the National Plan for Water Resources Development formulated by the Ministry of Irrigation and Central Water Commission. The Plan envisages generation of 40 million KW of hydro electricity apart from providing irrigation to 35 million hectares of land, navigation and flood control benefits.

Shri D.V. Kapur, Secretary, Department of Power in his valedictory address said that the Ministry of Energy had initiated action to prepare a 15 years power plan. The plan will be comprehensive one involving identification of specific schemes available for power development, their frames for start and commissioning and evolving an optimum power generation programme. The development of the transmission facilities required for bulk transfer of power and integration of power systems will also be kept in view. ☐

Progress of Land Reforms in W.B.

UNDER the West Bengal Government's "Operation Barga" programme the total number recorded of bargadars has increased from 5.33 lakhs in 1978 to 7.85 lakhs at the end of 1979 and then to 10.02 lakhs at the end of 1980, according to the Economic Review, 1980-81. The estimated total number of bargadars in West Bengal is 20 lakhs.

The State Government has also taken special steps in the spheres of detection, recovery and distribution of land above the ceiling limit. The total vesting of agricultural land, has increased from 11.77 lakh acres at the end of 1979 to an estimate of 12.11 lakh acres at the end of 1980. Out of little over 40 lakh acres of agricultural land declared surplus throughout the country, West Bengal's contribution of 12.11 lakh acres represents about 30 per cent of the total. ☐

Industrial Nucleus in Orissa

THE Task Force in Orissa has identified Chandaka in the district of Puri for promotion of a nucleus industrial complex in Orissa. The report of the Task Force envisages acquisition of 2,000 acres of land by Orissa Industrial Infrastructure Development Corporation in the first phase, for locating large and medium industries and their ancillaries. The total investment will be nearly about Rs. 66 crores and will generate employment for about 7,000 persons. ☐

Green Fodder Throughout the year

A Central Workshop with a fleet of 50 tractors has been established at Govt. Livestock Farm, Hissar in order to supply green fodder to the farm throughout the year. Green legumenous and other forage crops are sown in this farm to provide nutritive fodder to the cattle throughout the year. The farm also produces and supplies various seeds of improved varieties. The Government Livestock Farm rears cross-bred heifers for sale to farmers at reasonable price and for promoting cross breeding programme at village level. The Farm also maintains pure breed animals. ☐

National Water Development Agency

THE National Water Development Agency has been formally launched with the Rs. 170 crore clearance by the Public Investments Board. Described as the world's greatest water development project, it is aimed at constructing ultimately about 150 million-acre feet of storages and interlinking the river basins of the country.

The Agency which will be an independent body is to be registered as a society to give it freedom to recruit the personnel best available from all sources and levels. The initial Rs. 170 crore that has been sanctioned for a seven-year period will be utilised for surveys and preparation of development plans.

The idea of building storages on a big scale was first mooted as Ganga-Cauvery link system by tde then minister of Irrigation and Power, Dr. K. L. Rao. The proposal was later radically changed and a new scheme was prepared and circulated to the National Development Council meeting held last year, at the time of the discussion of Sixth plan frame.

The total surface water available in the country is estimated at 1,440 million acre feet of which only 220 million acre feet are said to be being now used. The plans so far evolved by the state governments can at best utilise only about 540 million acre feet of water.

The plan that has been prepared forms two distinct parts. The one pertaining to the Himlayan River Development envisages agreeements with other countries. The part for the development of peninsular rivers involved agreements between the States and has to be settled at the political level. But all the States are said to be evincing keen interest and have shown readiness to start the surveys and investigations immediately.

The proposed storage is estimated ultimately to give 170 million acre feet of water enabling irrigation over an additional area of 35 million hectares and generation of 40 million k.w. of hydro-power capacity apart from other flood control and multipurpose benefits. ☐

Man Made Forests

HARYANA leads in the man made forests among the states of the country. Trees have been planted on the link roads in the State. In one month i.e. February 12 lakh ornamental plants were planted in the compounds of religious and educational institutions, Gram Panchayats, Choupals etc. About 1.25 crore more plants would be planted shortly in the State. ☐

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BOOKS

An Invaluable Guide on Public Relations

Handbook of Public Relations in India by D. S. Mehta, Allied Publishers Pvt. Limited, Pages 332, Price Rs. 75.

PUBLIC RELATIONS has come of age in India. It is no more dirty to be in the public relations field A PR man has started taking pride in his profession.

Public relations is modern version of the traditional drum-beating. There is undoubtedly a vital difference : now one does not know the drum-beater or whose drums he is beating. The trade has assumed a sophistication and poise that it takes a shrewed man indeed to sift chaff from grain. Though there are set rules and parameters within which the PR men operate, even here a great deal depends on the practitioners themselves.

Since public relations is shaping a personality of its own, it augurs well for beginners as well as those who are in the field for too long to refresh their memory, to have a ready reckoner-type guide. This void is ably filled by Shri Mehta in his book containing 34 chapters and ten appendices besides a select bibliography and carefully prepared index.

Shri Mehta has touched on almost all aspects of the public relations profession and from almost all angles. He has also included relevant portions of the legal provision so essential for the professionalists. Also a general outline of the press council, news agencies and non-aligned newspool is incorporated.

Every profession has its unspecified technique of doing a job well. So has PR. PR unfortunately has come to be known in metropolitan cities, where it is still confined so far, as wining and dining and at the end of it hand over a press release along with costly or not-so costly gifts. A carefully planned public relations press conference, for instance, by a PR agency can yield rich dividends. Shri Mehta has lucidly explained the manner in which the media can be made use of to project the image of the produce or a company or an institution.

Even an exceptionally good material can be lost if the PR man mishandles it in the timing, selection of correspondents or newspapers or other media or in tripping in the manner in which he approaches them.

When we talk of public relations. I was reminded of an incident some years ago when I was sitting in the office room of a newly-sworn Union Cabinet Minister. A senior official informed the minister that he was entitled for an information officer of the rank of Deputy Principal Information Officer. The minister's robust common sense by way of his observation struck deep in my mind. Here is what he asked the official: "What for? Will he be able to build my image as a minister if I don't do well? Contrarywise, if I do well, do you think I would require his services?"

This may be an extreme example of the supreme self-confidence of the enthusiastic minister, fresh in the *gaddi.* There is a place for PR man to project the image of a government or an institution in the public or private sector. The right type of information given out in time can steer the government or agency clear of many a misunderstanding and problems later.

Shri Mehta deserves to be complimented for the excellent book he has brought out. I have no doubt that it could be of invaluable guide to thousands who aspire to enter the profession. Coming as the book does after Shri Mehta's other companion publications—"Mass Communication and Journalism in India," "Guide to Resettlement of Ex-servicemen," etc.,—I have no doubt it will go a long way to be of great use to PR men themselves.

A. N. Prabhu

Tribal World

The Tribal World and its Transformation : Edited by Bhupinder Singh and J. S. Bhandari ; General Editor, L. P. Vidyarthi. Tenth ICAES series No. 1. Concept Publishing Company. New Delhi : Pages 276 : Price Rs. 60.

THE Tenth International Congress of Anthropological and Ethnological Sciences was organised, for the first time, in India during December, 1978 with the main Congress in Vigyan Bhavan,, New Delhi and Post-Congresses at several Universities located in different parts of the country. The delegates were about 3,500 representing 63 countries. About 1,000 papers covering a wide range of topics were contributed by various scholars, from various parts of the world, representing different branches of anthropological and ethnological sciences. These papers are being processed to be brought out in a series of meaningful volumes. This book is the result of such an endeavour and is first in the series.

The book contains 18 papers written by scholars from India, Japan, Canada, Germany, Bangladesh, Papua, New Guinea, Yugoslavia, and Australia. The book begins with an introduction by the General Editor and the President of the Congress, L. P. Vidyarthi. This is followed by another Introduction by the two editors Bhupinder Sihgh and J. S. Bhandari. Most of the papers contained in the book are based on imperical investigation besides a few which are the results of rigorous library work and authors' prolonged experience and studies. In this regard mention may be made of the papers on the Tribal Situation in India : Industrialisation and Urbanisation : Dynamics of Development: Participation Perspective; 'Challenges of Cultural Adjustments: A Canadian effort, etc. Undoubtedly, the book presents the tribal situation in the cross-cultural context at the global level.

One can imagine how difficult is the task of processing 1,000 papers and bring them out in meaningful volumes. The General Editor and the Editors deserve to be congratulated for their effort in bringing out the first volume in record time.

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Economic Development in Karnataka

Economic Development and Betterment Taxes in Karnataka by S. P. Kher, published by Mrs. Kusum S. Kher; Gandhi Chowk, Dharwad-580001. 1980, pages 236, Rs. 45.

THE book in hand attempts to deal with : agricultural development ; food distribution policy; industrial development; regional development; district planning; programme of minimum needs; the problem of finances; rural taxation in Karnataka; irrigation rate and betterment levies; rural electrification; and the pricing policy of State Road Transport Undertaking. It starts with the setting—the planning economic development and ends with the conclusion of the study—"in Karnataka, as elsewhere economic development has not been adequate to provide food, work, and shelter as well as the minimum needs of social consumption".

In order to assess the gravity of the problem attempts have been made to quantify the levels of poverty. On an average, 37 per cent of the population were found to live below the poverty line. Poverty in urban areas is found to be more grave than in rural areas. It is observed in the study that the lack of productive employment and existence of underemployment are obviously the causes of poverty. Employment must increase agricultural and industrial production and should not merely place more purchasing power in the hands of labourers who cannot be provided with suitable employment. Labour intensive schemes, as a number of such schemes are under way, need a big push. Such programmes have to be integrated with other programmes of agricultural development and the minimum-needs-programme. An integrated development approach similar to the former Community Development needs to be undertaken. A new movement with vigour and enthusiasm will have to be started in rural areas. Simultaneously, a new strategy of developing central villages, or growth centres, will have to be adopted.

It is argued that the development strategy would depend on the emergence of local leadership; on the adequacy of the basic administrative structure and on work-attitudes. Clarity of purpose is an essential ingredient of the development strategy. Exploration of potential markets will have to be made. For industrialisation depends more on building markets than on building factories. Industrial development is not a function of concession. It is more a matter of individuals with initiative. In a developing country a Government wedded to welfare objectives has to take initiative, provide infrastructure and invest in industries and services essential for achieving social objectives. Regarding taxes, it is said that the betterment taxes are better suited for raising revenues.

To sum up, the author suggests that the institutional structure for planned development would be (a) Mandal Panchayats, (b) Taluka Development Boards and (c) in the case of Karnataka, Regional Planning Authorities. The State has to provide adequate financial resources to these institutions through devolution of funds, share in sales taxes, land revenues and grants. Creation of central villages or growth poles, would be a new strategy. A vigorous new socio-politico-economic movement would be necessary to adopt this new strategy in the immediate future.

S. K. Dhawan

Economic Statistics

Introductory Economic Statistics by D. M. Mithani, Oxford and IBH Publishing Company, New Delhi, 1980. Pages vii+296, Bibliography and index Price Rs. 20.

APPLIED Statistics is a science which employs tools and formulae developed in Theoretical Statistics, for condensing large and disarrayed chunks of data into small meaningful bits of information. Judged by this definition the book is a convenient handmaid for all those who have to undergo complusory training in elementary statistics. It has explained and illustrated all the standard and frequently used techniques.

Since the book is going to be used by students who cannot make out the mathematical basis of the formulae, it is necessary that they are reproduced correctly. The students cannot ascertain the correctness by themselves and therefore may make wrong use of them. There are several glaring errors which have to be rectified in the next edition. Barring these mistakes, the book is a welcome addition to the existing literature on elementary applied statistics in India.

Suresh N. Kulkarni

Towards Maize Revolution

CAPT. RATTAN SINGH, a former Punjab minister and a progressive farmer, has started growing winter maize of American parentage in his farm along the Sutlej banks. The sturdy crop which has withstood adverse conditions like hailstorm is expected to yield about 25 to 30 quintals an acre. The yield of maize in summer is about 10 to 15 quintals. The yield can be further increased with better varieties. (In America the yield is about 50 quintals per acre.) Experts feel that the present experiment in Punjab can lead to a maize revolution.

Agricultural Loans

AGRICULTURAL LOANS disbursed by Cooperative Land Development Banks in 1979-80 registered a 25 per cent increase by crossing for the first time Rs. 300 crores mark. This is disclosed in the annual report of the National Cooperative Development Banks' Federation released on the occasion of its annual general meeting in Bombay recently. The loans advanced during the year amounted to Rs. 308.31 crores--Rs. 60·73 crore more than the previous year. Andhra Pradesh topped the list with the disbursement of Rs. 58.54 crores followed by Uttar Pradesh with 58.25 crores. Fifty per cent of the total loans were disbursed to small farmers. Recovery of loans, however, suffered a set-back because of severe scarcity conditions in certain parts of the country.

STEP BY STEP

Export Performance Award for WAPCOS

THE Water and Power Consultancy Services (India) Limited (WAPCOS), a public undertaking under the Union Ministry of Irrigation has been given the highest National Award for Outstanding Export Performance during 1978-79. Shri D. P. Chadha, Chairman and Managing Director of WAPCOS received the award from the President of India at a special function held in New Delhi recently.

The company has won this distinction in competition with all consultancy organisations in the public and private sectors. This is the second successive year the company has received the award from the Government of India.

This year, the company achieved a turnover of Rs. 338.47 lakhs as against Rs. 207.67 lakhs last year. It earned foreign exchange amounting to Rs. 96.62 lakhs, in addition to individual remittances by exporters. The company expected to improve upon this in the current financial year.

WAPCOS is recognised as one of the leading consultancy organisations in Asia in the field of planning and development of irrigation, flood control, hydro and thermal power, water supply, ground water surveys etc. in 17 countries in Asia and Africa. These include Afghanistan, Burma, Iraq, Nepal, Nigeria, Philippines and Sri Lanka.

Railway Station with Gobar Gas Lamps

A gobar gas plant has been constructed at Kusugal railway station near Hubli in Karnataka for illuminating the station with gas lamps. The switching on ceremony took place recently in the presence of Shri V. T. Magadi, Chairman, Karnataka Khadi Federation and Shri Hari Prasad Babu, the General Manager, South-Central Railway.

New Method of Oil Prospecting

OFFSHORE deposits of oil and gas can be discovered by simulating a lightning discharge under water. This novel seismic prospecting technique is finding an increasingly wider application in offshore development in the USSR. Unlike the other seismic shooting techniques, the new geoacoustic profile shooting method, as the Soviet geophysicists have called it, enables a detailed investigation of the near surface bottom soils.

"Offshore oil is often prospected at great depths, while it sometimes lies literally within earshot—only a few hundred meters below the bottom," says Dr. Leonid Lebedev, a pioneer of introducing electric spark methods in oil and gas geology. Dr. Lebedev heads the laboratory developing new techniques of offshore low-depth minerals prospecting, at the Institute of Geology and Development of Fossil Fuels.

There is wide-spread opinion that productive beds lie only at a definite, rather large distance below the bottom level. For this reason the upper layers have been called "the zone of no deposits". Seismic prospecting enables a very penetrating look in the earth's entrails. But, like a searchlight lights up a distant object leaving closer ones in darkness, powerful seismic signals, going down, skip the upper layers without providing a clear picture of them. In the opinion of Leonid Lebedev, there is abundant evidence to justify that more interest should be shown in them.

Many of them may prove to be the zones of deposits. The research conducted by Dr. Leonid Lebedev and his assistants has succeeded in discovering more than 20 pockets of hydrocarbons holding out promise for industrial prospecting. The new technique has been tested with success during the recent joint Soviet-Bulgarian expedition, under Lebedev, in the Black Sea off Bulgaria's shores.

(Soviet Features)

New Growth Hormone

PROFESSOR James Tanner, of the Institute of Child Health, London will soon start the first test of human growth hormone produced by genetic engineering.

The hormone is vital to ensure that children grow properly and reach their full height. But some children—about 100 new cases appear every year in Britain—lack the ability to produce the hormone for themselves. For the past 20 years, these children have been treated successfully with human growth hormone extracted from pituitary glands removed during postmortem examination.

The new method involves persuading a common bacterium to produce the hormone by rewriting the bacterium's genetic instructions, which are written in code in the form of a long thread of the genetic material DNA. The DNA is taken out of the bacterium and a new piece of DNA spliced in before it is put back again. The bacterium is then kept alive in a nutritious broth and produces human growth hormone along with its normal bacterial proteins. The hormone can then be separated and purified.

(Spectrum)

Appliances to the Disabled

The Ministry of Social Welfare has drawn up a new scheme to provide financial assistance to handicapped persons to buy sophisticated, scientifically manufactured modern aids and appliances that may help promote their physical, social, economic and psychological rehabilitation. Under the scheme,aids and appliances would be available to the disabled free or on subsidised rates depending on the income of the disabled or his parents and guardian in case he is a dependent. Persons with monthly income upto Rs. 750 would get the aids free and whose income ranges between Rs. 751 and Rs. 1500 would be given the aids at 50 per cent of the cost.

Besides the cost of equipment or aid the scheme also provides payment of fitment charges if any, actual travel cost of disabled person, of an escort if the disabled person is not in a position to travel without an escort and board and lodging expenses for a miximum of 15 days.

The aids and appliances each costing between Rs. 25 and Rs. 1500 are covered under this scheme. If more than one aid is required, it is permissible and the limits are applied separately.

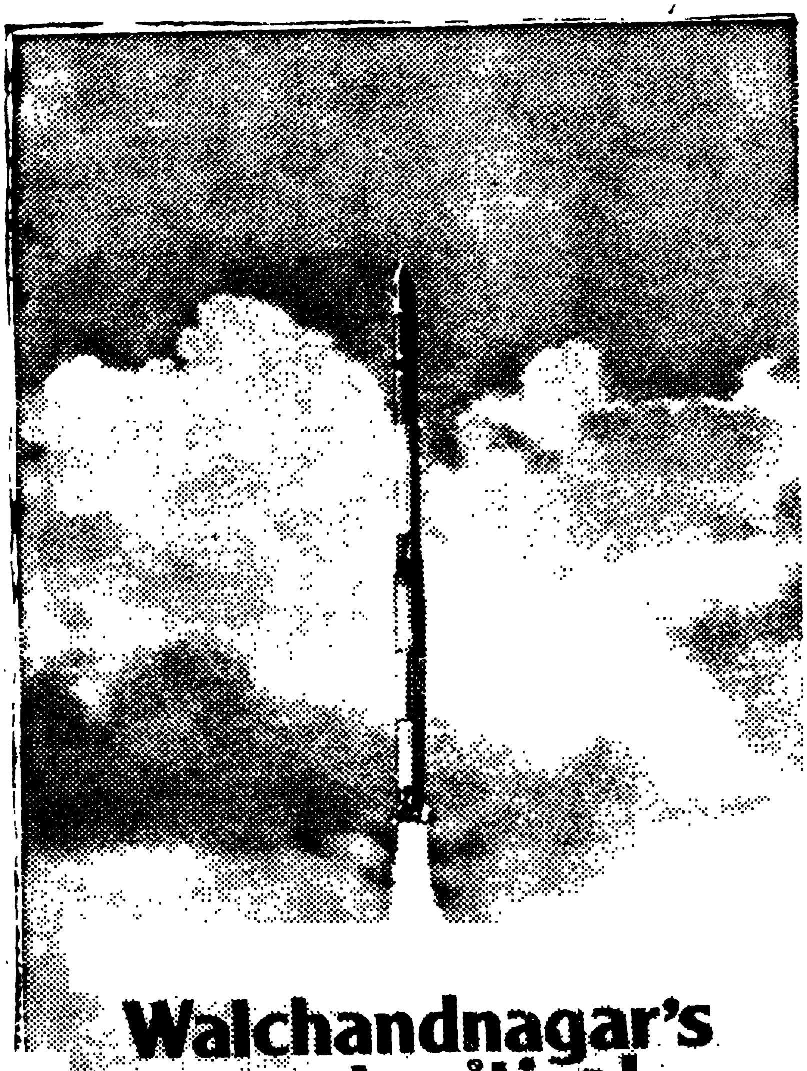
The scheme is to be implemented through selected Centres run by Companies registered under the Companies Act, registered societies, trusts or any other institution recognised for the purpose. The Scheme also provides for placement of funds in advance with the implementing agencies on a quarterly basis. ☐

Disabled Persons in M.P.

AS many as 1,01,120 disabled persons have been registered in Madhya Pradesh, as a result of a survey conducted by the Directorate of Panchayat and Social Welfare, M. P. from 1977 to 1980. There are 76,545 disabled persons in urban areas while 24,575 disabled persons live in rural areas. Of these, 35,235 are blind, 13,174 deaf and dumb and 52,711 are handicapped. Mentally retarded persons are not included. ☐

Exemption for Handicapped

THE Government of West Bengal has decided to exempt the salaried or wage earning physically handicapped persons i.e. the blind, the deaf and dumb and the orthopaedically handicapped, from the levy of professional tax under the West Bengal State Tax on profession, Trades, Callings & Employment Act, 1979. The persons claiming the benefit shall have to furnish a medical certificate. ☐



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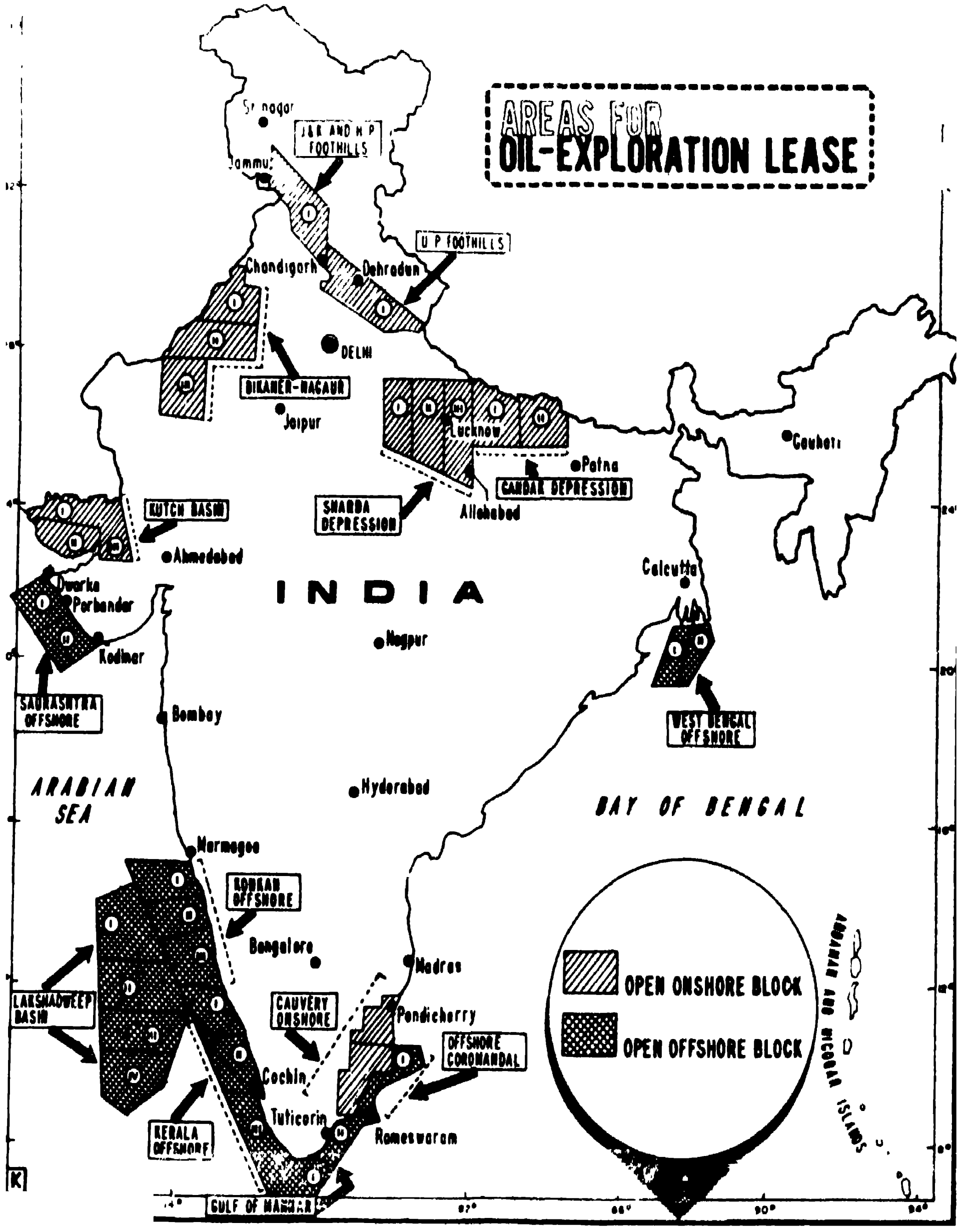

Areas for oil exploration given on lease.

Self-reliance in Oil

THE consumption of petroleum products has increased six-fold during the last 25 years. The Sixth Five Year Plan (1980-85) projections show that it may touch 45.4 million tonnes. Indigenous crude oil production, which started very humbly, now fulfils a respectable 45 per cent of the entire demand. In 1981-82, crude oil from on-shore and off-shore areas is expected to be 16.9 million tonnes, which may go upto about 22 million tonnes by the end of the Plan period. Yet the dependence on supplies from abroad is heavy. Last year (1980-81), 16.7 million tonnes of crude and about eight million tonnes of petroleum products were expected to be imported at a cost of Rs. 5,600 crores.

To attain self-reliance in crude oil. The proposed Sixth Plan outlay is over Rs. 2,870 crores on oil exploration.

The policy implementation has taken two complimentary directions. The Oil and Natural Gas Commission (ONGC) and Oil India Ltd. (OIL), the two premier oil explorations and development agencies of the country, are being encouraged and assisted to step up their exploration and development programmes. The other direction is to supplement the oil prospecting work of ONGC and OIL by leasing out selected areas to competent and experienced foreign oil companies for exploration work. □

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Maternity Welfare Centre Building under construction

Integrated Rural Development Programme In Tamilnadu

FROM OCTOBER 2, 1980, the Integrated Rural Development Programme has been extended to all the 5,011 development blocks in the country. The I.R.D. programme is aimed at a "target group" consisting of the weakest elements in our society. In the selection of beneficiaries under this programme, every care has to be taken to ensure that influential and well-to-do persons do not appropriate to themselves the resources provided for the poorest sections of the population.

In Tamil Nadu, as a two-pronged drive, a massive programme of works has been inaugurated in 69 out of 376 blocks during 1980-81. This includes drinking water supply in 2,045 habitations, link roads covering 4,445 kms. culverts totalling 2,760, pathways to scheduled castes colonies and burial grounds covering 771 kms., improvement to minor irrigation through 683 sources, opening of 75 rural dispensaries. school buildings and 6,448 houses for scheduled castes under rural housing scheme are also completed.

In addition, 138 latrines for women will be constructed at the rate of 2 per cent of the 69 self-sufficiency blocks at a total cost of Rs. 8.73 lakhs. A massive programme to provide electricity to huts owned by scheduled castes has also been undertaken.

The second batch of 120 blocks will be taken up for similar provision of the infrastructure during 1981-82. The remaining blocks will be covered in the course of a year or two. ☐

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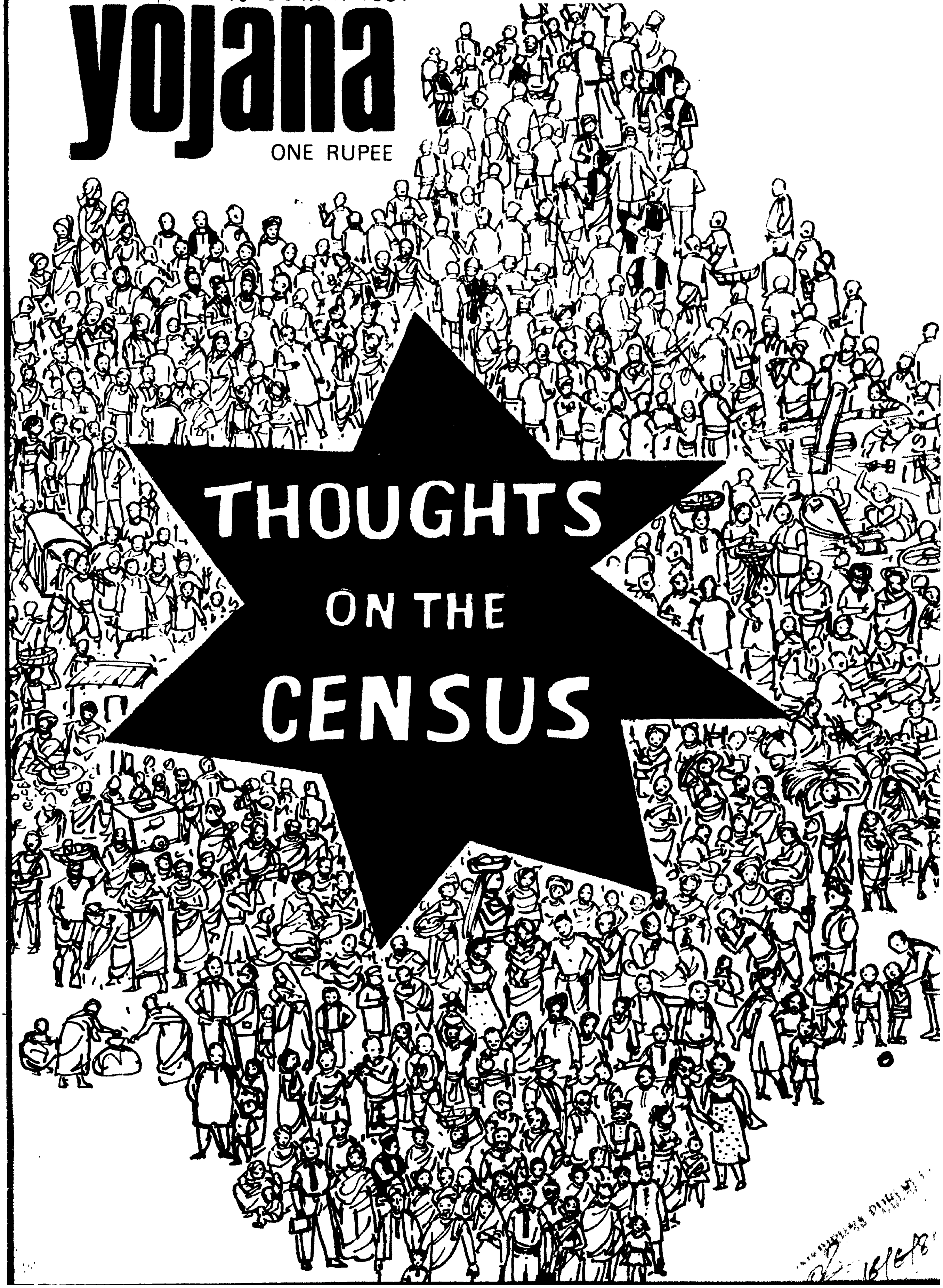
ONE RUPEE



THOUGHTS ON THE CENSUS

16/6/81

Windmill : A Perspective

Hanuman Prasad*

THE quest for alternate sources of energy has opened up new vistas of nature's secrets and the "Wind" blows in the promising direction. The exploitation of the wind energy through wind mills is expected to turn a new leaf in the countryside of India where agricultural operations have been hampered to a great extent due to power shortage. The windmill project of the Organisation of the Rural Poor (ORP), Kusmil Kalan, Ghazipur, Uttar Pradesh has made good strides in this direction.

The ORP initiated its windmill experimental project in December, 1977 although preparatory actions were taken in 1975, the year of inception of the ORP, which is a project of organising the rural poor for securing their integrated development. The International Confederation of Free Trade Unions—Asian Regional Organisation (ICFTU-ARO) has under the experiment windmill as one of the special projects of the ORP. The ORP and Windmill Project have been sponsored by the Society for Promotion of the Organisations of Rural Poor, New Delhi. And the windmill project was started in collaboration with the TOOL Foundation, Amsterdam, Netherlands. Ghazipur windmill has been found technologically sound as an alternative irrigation device to traditional means of irrigation and has potential to substitute diesel and electric pumpsets of 5.5 H.P. particularly in an area having wind regime of 10 km. wind velocity per hour.

A team of TOOL engineers with the help of local artisans and counterpart Indian engineers, fabricated three prototype windmills by April, 1978, in workshop of Technical Higher Secondary School and Rural Training Institute of the U.P. Government at Ghazipur with raw materials brought from Varanasi and Ghazipur. They were experimented, improved and perfected during the last two years.

Till December 1980, 13 windmills were installed in the Ghazipur district and three were sold to the Government of Rajasthan and to other agencies. A workshop for the manufacture of windmills was set up in the premises of the ORP at Kusumih Kalan and it has installed capacity of producing 100-200 windmills. The project is having all needed faculities for field servicing, repairs and maintenance. The programme of extension of the technology and training is part and parcel of the Project.

Ghazipur Windmill with a potential to substitute diesel and electric pumpsets of 5.5 H.P.

The prototype windmills from the beginning successfully lifted water having 3-5 inches delivery just like 5.5 H.P. diesel or electric pumpset. Windmills are installed on an open masonry well having a 4-inch diameter boring in the centre of the well in which transmission system of lifting water is fitted. The operation of the system is from the wind energy which is mechanically deployed through a rotor and shaft moved by twelve-blade fan. The fan starts moving at 2.5 Km. per hour wind velocity with limited water delivery but functions to its full capacity (3"-4" water delivery) at 8 Km. per hour velocity of the wind. Ghazipur is an area of low wind velocity unlike South and West India where wind velocity in many areas is more than 10 Kms. per hour for more than 175 days in a year. Windmill is functioning efficiently for about 6 months in a year from March to August when there is needed wind velocity and in remaining months its functioning is limited depending upon the velocity. In summer a windmill is able to provide irrigation to about one hectare of land while its coverage in winter is reduced to 0.5 hectare. To meet the wind speed fluctuations and for efficient use of water when it is required for irrigation a Kachcha water store tank has been dug near the windmill. This tank is being utilised by the farmers for rearing fish as well.

The windmill is becoming popular and being adopted as alternative irrigation device by farmers. Many marginal and small farmers have installed windmills and there are many pending applications with local banks. In first two months of 1981, Ghazipur workshop has manufactured and supplied eight windmills. The installation involves two major cost elements · cost of windmill and cost of boring, pipes and a tank. The Ghazipur windmill is popularly known as TOOL-ORP 12 PU 500 windmill. Its total cost in around

(Continued on Cover III)

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*Freelance Writer

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Editorial

Better Management of the Economy

WHEN the appointment of the Economic Administration Reforms Commission under Shri L. K. Jha was mooted, various speculations were raised about its possible role. On one side it was mentioned that the new commission would be a superbody, even dwarfing the Planning Commission ; on the other side it was suggested that the new panel would be just one more in the list of non-effective commissions. But the terms of reference of the commission and the subsequent clarifications made by Shri Jha, who is both an eminent economist and administrator, show that there is no cause for such fears. The important terms of reference are : tax administration, its rationalisation and improvement, to use non-tax methods for raising the level of savings, examination of proposals for the establishment of a new world economic order and examination of State rent control laws and the recommendations regarding a model law. Shri Jha has stated that the Commission's role was not to change the existing social structure or to suggest new economic objectives. What it intends to do is to improve the existing economic order. This itself can have a tremendous impact on the economy.

There is immense scope for improving the functioning of the economy and making it cater to the needs of the poorer sections of the people The Prime Minister has repeatedly called for a national efficiency campaign. Both the public and private sectors of the economy need such a general toning up. Production of both infrastructural items and consumer goods—specially the goods needed by the poor people—should be increased considerably for ending the shortages, reducing prices and promoting employment. The existing controls should be reviewed and those which impede speedy growth of the economy should be suitably changed. The wide gap between planning and its actual implementation should be bridged and the implementing agencies should be held responsible for failures. Further there should be clear demarcation between policy-making bodies and implementing agencies and the former should not intervene in the day-to-day functioning of the latter. The increasing deterioration in the capital-output ratio, which is another symptom of economic inefficiency should be rectified. Regarding the external economic policy, Shri Jha has urged the need for intensifying import substitution and export expansion.

The Commission has started its work in right earnest regarding the first two terms of reference dealing with taxation. It is well-known that our tax structure is complex and perplexing and the indirect taxes have a regressive impact on the poorer sections. Quite a few expert committees have submitted their reports in the past for reforming the tax system. What is needed for the new Commission is to study them, simplify the tax system and improve its administration. There are some other chronic economic problems such as black money, wages-income policy, subsidies, increasing non-developmental expenditure of the government etc. It is worth referring such questions also to the Jha Commission.

(Contd. on page 16)

Special Article

The Decisive Decades

A note on the provisional results of the 1981 Census of India

P. Padmanabha*

THE CENSUS OF INDIA is taken once every ten years and we have just completed the 1981 Census. This represents the 12th Census in a continuous series and the fourth after Independence. The enumeration was carried out from 9th February to 28th February 1981 followed by a revisional round from 1st to 5th March, 1981. Based on the compilation of basic data on the basis of the enumerators' working sheets, certain provisional results have been arrived at which have been announced recently. These results provide information regarding the population of the country, including the States and Union Territories and by sex and also data relating to literacy. Other data regarding rural-urban distribution of population and broad working characteristics will be available only a little later. The massive process of tabulation has commenced and final figures are expected to be available within a year.

The provisional population of India as recorded at this census is 683,810,051. This population includes the projected population in the case of Assam and Jammu and Kashmir. In Assam State the Census could not unfortunately be carried out while in the case of Jammu & Kashmir it is proposed to be carried out in late April 1981 due to weather conditions. The provisional figures provide sufficient data for a consideration of a few important aspects relating to the population of the country with particular reference to growth rates, the density, the sex ratio and literacy.

India is among the four largest countries of the world and it is only China with 957 million that has a larger population. The USSR and USA are the other two countries with large populations and these four countries together account for nearly half the population of the globe. While India's population is the second largest in the world, or 15 per cent of the world's population, the country accounts for only 2.5 per cent of the total world area.

Growing, Growing.....

The population of the country has steadily increased from 1901 as the statement below would indicate :

Population of India 1901-1981

Year	Population	Decadal growth rate		Percent progressive Growth Rate over 1991
		Absolute	Percentage	
1901	238,396,327	..	..	..
1911	252,093,390	+13,697,063	+ 5.75	+5.75
1921	251,321,213	— 772,177	—0.31	+5.42
1931	278,977,238	+27,656,025	+11.00	+17.02
1941	318,660,580	+39,683,342	+14.22	+33.67
1951	361,088,090	+42,420,485	+13.31	+51.47
1961	439,234,771	+77,682,873	+21.51	+84.25
1971	548,159,652	+108,924,881	+24.80	+129.94
1981	683,810,051	+135,650,399	+24.75	+186.84

Except for a slight fall in the total population in the decade 1911-21 the population has grown steadily over the years, the growth being rapid after 1951. In absolute terms the population has increased by about 136 million in the last decade. The table on the next page provides information regarding the provisional population of each State and Union Territory.

A comparision with the population of 1971 would indicate that the growth rates have been of a fairly high order except in a few cases. The all India growth rate itself is almost equal to that in the decade 1961-71 and in absolute numbers the addition is

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*Registrar General and Census Commissioner.

Distribution of Population, Sex Ratio, Growth Rate in States/U.T.

Sl. No.	India/State/ Union Territory	Population, 1981			Sex Ratio, i.e. females per 1000 males		Density of population per sq. km.		Decennial growth rate of population	
		Persons	Males	Females	1971	1981	1971	1981	1961-71	1971-81
1	2	3	4	5	6	7	8	9	10	11
	India	683,810,051	353,347,249	330,462,802	930	935	177*	221*	+24.80	+24.75
	States									
1.	Andhra Pradesh	53,403,619	27,035,531	26,368,088	977	975	158	194	+20.90	+22.76
2.	Assam	19,902,826	10,472,712	9,430,114	896	900	186	254	+34.09	+36.09
3.	Bihar	69,823,154	35,865,467	33,957,687	954	947	324	402	+21.33	+23.90
4.	Gujarat	33,960,905	17,484,540	16,476,365	934	942	136	173	+29.39	+27.21
5.	Haryana	12,850,902	6,846,153	6,004,749	867	877	227	291	+32.23	+28.04
6.	Himachal Pradesh	4,237,569	2,131,213	2,106,257	958	988	62	76	+23.04	+22.46
7.	Jammu & Kashmir	5,981,600	3,062,200	2,919,400	878	953	NA	NA	+29.65	+29.57
8.	Karnataka	37,043,451	18,869,494	18,173,957	957	963	153	193	+24.22	+26.43
9.	Kerala	25,403,217	12,487,961	12,915,256	1,016	1,034	549	654	+26.29	+19.00
10.	Madhya Pradesh	52,131,717	26,856,752	25,274,965	941	941	94	118	+28.67	+25.15
11.	Maharashtra	62,693,893	32,341,115	30,352,783	930	939	164	204	+27.45	+24.36
12.	Manipur	1,433,691	727,108	706,583	980	972	48	64	+37.53	+33.65
13.	Meghalaya	1,327,874	678,883	648,991	942	956	45	59	+31.50	+31.25
14.	Nagaland	773,281	414,231	359,050	871	867	31	47	+39.88	+49.73
15.	Orissa	26,272,054	13,253,523	13,018,531	988	982	141	169	+25.05	+19.72
16.	Punjab	1,6669,755	8,840,243	7,829,521	865	886	269	331	+21.70	+23.01
17.	Rajasthan	34,102,912	17,749,282	16,353,630	911	921	75	100	+27.83	+32.36
i8.	Sikkim	315,682	171,959	143,723	863	836	30	44	+29.38	+50.44
19.	Tamil Nadu	48,297,456	24,420,228	23,877,228	978	978	317	371	+22.30	+17.23
20.	Tripura	2,060,189	1,057,7.4	1,002,475	943	948	148	196	+36.28	+32.37
21.	Uttar Pradesh	110,858,019	058,780,640	52,077,379	879	886	300	377	+19.78	+25.49
22.	West Bengal	54,485,560	28,505,151	25,980,409	891	911	499	614	+6.87	+22.96
	Union Territories									
1.	Andaman & Nicobar Islands	188,254	106,889	81,365	644	761	14	23	+81.17	+63.51
2.	Arunachal Pradesh	628,050	335,941	292,109	861	870	6	7	+38.91	+34.34
3.	Chandigarh	450,061	254,208	195,853	749	770	2257	3948	+114.59	+74.95
4.	Dadra & Nagar Haveli	103,677	52,514	51,163	1007	974	151	211	+27.96	+39.78
5.	Delhi	6,196,414	3,422,550	2,773,864	801	810	2742	4178	+52.93	+52.51
6.	Goa, Daman & Diu	1,082,117	546,260	535,857	989	981	225	284	+36.88	+26.15
7.	Lakshadweep	40,237	20,367	19,870	978	976	994	1257	+31.95	+26.49
8.	Mizoram	487,774	251,988	235,786	946	936	16	23	+24.93	+46.75
9.	Pondicherry	604,136	304,342	299,794	989	985	959	1228	+27.81	+28.07

impressive. All the States and Union Territories have had an increase of population at different rates and in almost all cases the additions in numbers between 1971 and 1981 are higher than that between 1961 and 1971. It is only in the States of Kerala, Orissa, Tamil Nadu and in the Union Territory of Goa, Daman & Diu that the absolute increase in the last decade is lower than in the decade 1961-71. Incidentally, the growth rates in these States are also lower. The implications of the population growth are rather important in our context since population enters as a denomination into almost all calculations of indices of quality of life, whether it be food supply, education, housing, medical and health facilities, etc. If one were to consider the growth rates in a little more detail, it will be noticed that the States and Union Territories that have experienced growth rates in the decade 1971-81 faster than in the decade 1961-71 are Andhra Pradesh, Assam, Bihar, Karnataka, Nagaland, Punjab, Rajasthan, Sikkim, Uttar Pradesh, Dadra & Nagar Haveli, Mizoram and Pondicherry. The other States and Union Territories have all experienced a slowing down of growth rate. Doubtless one would have to wait for more detailed data before any conclusions can be drawn on these trends but in the population context of the count it is important to take note of the higher growth rate in the major States of Bihar, Rajasthan and Uttar Pradesh. Among the States and Union Territories eleven have had an accelerated rate of growth over the last decade. These would include certain States such as Nagaland, Sikkim and Union Territories such as Andaman & Nicobar Islands, Dadra & Nagar Haveli, Mizoram and Pondicherry, where the comparatively larger variations of growth rate can partly by attributed to migration which calls for separate policy prescriptions. The provisional results would indicate that there is a need for a more detailed consideration of the situation in the States of Andhra Pradesh, Bihar, Karnataka, Rajasthan and Uttar Pradesh. These States are major units which contribute considerably to the population of the country and would appear to call for particular attention.

Male Domination

The provisional results provide information regarding the density of population but for the present analysis the sex ratio is of more interest. The sex ratio which is defined as the number of females per thousand males in the population has generally been adverse to females, i.e., the number of females per thousand males has generally been less than thousand. The table below indicates the sex ratio in the country from 1901 to 1981 :

Sex Ratio 1901—1981

Census Year	Sex Ratio
1901	972
1911	964
1921	955
1931	950
1941	945
1951	946
1961	941
1971	930
1981	935

Apart from the fact that the sex ratio has been constantly adverse to females so far, it will be noticed that the ratio has tended to deteriorate over the decades. For the first time, in 1981 it would seem that the tendency for the sex ratio to deteriorate has been halted and that, in fact, there has been a slight improvement. Without going into technicalities, the improvement in the sex ratio is supported by the assumption made by the Expert Committee on Population Projections with regard to expectation of life at birth of females improving over the years. One of the conclusions that one could at this initial stage come to is that probably maternal and child care programmes are yielding dividends.

It is not proposed to discuss the variations of the sex ratio among the States but as a matter of interest it may be noted that Kerala is the only State where the sex ratio is in favour of females with 1034 females per thousand males. In all other States and Union Territories there are less women than men. Much of the variation in the sex ratio can be explained in terms of migration for employment, health conditions in a given area, etc., but this would have to be a matter of further detailed analysis.

Low Literacy

The provisional results also yield important information regarding literacy. The literacy rates in the country, which would include the population in the age group 0-4, at each of the Census years from 1901 onwards is indicated below :

Literacy 1901-1981

Year	Persons	Males	Females
1901*	5.35	9.83	0.60
1911*	5.92	10.56	1.05
1921*	7.16	12.21	1.81
1931*	9.50	15.59	2.93
1941*	16.10	24.90	7.30
1951@	16.67	24.95	7.93
1961	24.02	34.44	12.95
1971	29.45	39.45	18.69
1981†	36.17	46.74	24.88

*For undivided India

@ Excludes Jammu & Kashmir

† Excludes Assam and Jammu & Kashmir

The literacy rates in the country have certainly improved over the decades but there is a clear differential between the rates among males and females with the latter falling behind male literacy rates almost continuously. The second statement given on page 8 shows the literacy rates for each of the States and Union Territories.

While one can derive some satisfaction from the improvement in the literacy rates, it is important to note that even though the number of literates has increased by about 82 million over the decade 1971-81, we have continuously added to the stock of illiterates in sheer numbers. The literates and illiterates in the 1971 and 1981 were as follows :

	Literates	Illiterates
1971	156,440,275	372,145,203
1981	237,991,932	419,933,693

These figures have been adjusted to exclude the data relating to Assam and Jammu & Kashmir. It will be noticed that even with the improvement in the literacy rate and the significant increase in the actual number of illiterate we have added about 48 million to the stock of illiterates. This is a fact which would have to be taken note of in terms of the scale of investment in educational programmes. It would mean that there has to be an enhanced activity in not merely formal schooling systems but also in the adult literacy programmes.

Female literacy is of particular importance in the context of programmes of family planning and health care. The table below indicates the progress in female literacy from 1901 to 1981 :

Progress of Female Literacy 1901-1981

Year	Number of literates		Literate males per 100 literate females
	Males	Females	
1901	11,870,758	809,580	1466
1911	13,552,737	1,298,484	1043
1921	15,690,428	2,221,499	1208
1931	22,274,035	3,977,034	560
1941	—	Not Available	—
1951	46,272,335	13,916,683	332
1961	77,906,038	27,565,962	283
1971	112,012,994	49,423,270	227
1981	158,837,215*	79,154,717*	201

*Excludes Assam and Jammu & Kashmir

It is interesting to notice that till the 1920s female literacy was considerably below male literacy with a ratio of nearly 1 : 10 in favour of males. Thereafter, there has been a clear improvement in female literacy but in 1971 it will be noticed that for every 100 literate females there were still approximately double the number of literate males. In 1981 the position is only slightly better. Thus the disparity between literate females and males continues to persist which again would call attention to the need for strengthening specific programmes oriented towards improving the literacy of women.

At this stage it would be useful to note that while there is general improvement in the literacy in the country the fact remains that nearly half of the males and nearly 75 per cent of the females in the country are still illiterate. If one were to take the total population into consideration, nearly 64 per cent of the people are still illiterate.

The States and Union Territories can be arranged in the order of literacy ranking in the 1981 census with a comparison of their rates and ranks on the literacy scale in the 1971 Census as given in the table below.

If one ignores Chandigarh for obvious reasons, it will be noticed that Kerala has a pre-eminent position with regard to literacy. 11 States are arranged by ranges of female literacy on the basis of this data, it would be seen that the States which have the highest growth rates in population are almost exactly the same as those which have low female literacy. In particular, this is so in the case of West Bengal, Karnataka, Haryana, Orissa, Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Bihar and Rajasthan.

Urban Growth

The rural-urban distribution of population will be available a little later. However, the information regarding those cities which have a population of a million and above have been provisionally totalled. As against 9 such cities in 1971 there are now 12. These cities with the provisional population as recorded at the 1981 census are as given in the table on the next page.

States/Union Territories arranged in the order of literacy ranking in 1981 Census and comparison with 1971 Census

Ranking in 1981	State/Union Territory	Literacy rate 1981	Literacy rate in 1971	Ranking in 1971	Percentage increase of literacy
1	2	3	4	5	6
1.	Kerala	69.17	60.42	2	+14.48
2.	Chandigarh	64.68	61.56	1	+ 5.07
3.	Delhi	61.06	56.61	3	+ 7.86
4.	Mizoram	59.50	53.79	4	+10.90
5.	Goa, Daman & Diu	55.86	44.75	6	+24.83
6.	Lakshadweep	54.72	43.66	7	+25.33
7.	Pondicherry	54.23	46.02	5	+17.84
8.	Andaman & Nicobar Islands	51.27	43.59	8	+17.62
9.	Maharashtra	47.37	39.18	10	+20.90
10.	Tamil Nadu	45.78	39.46	9	+16.02
11.	Gujarat	43.75	35.79	11	+22.24
12.	Manipur	41.99	32.91	14	+27.59
13.	Nagaland	41.99	27.40	19	+53.25
14.	Himachal Pradesh	41.94	31.96	15	+31.23
15.	Tripura	41.58	30.98	17	+34.22
16.	West Bengal	40.88	33.20	13	+23.13
17.	Punjab	40.74	33.67	12	+21.00
18.	Karnataka	38.41	31.52	16	+21.86
19.	Haryana	35.84	26.89	20	+33.28
20.	Orissa	34.12	26.18	21	+30.33
21.	Sikkim	33.83	17.74	27	+90.70
22.	Meghalaya	33.22	29.49	18	+12.65
23.	Andhra Pradesh	29.94	24.57	22	+21.86
24.	Madhya Pradesh	27.82	22.14	23	+25.65
25.	Uttar Pradesh	27.38	21.70	24	+26.18
26.	Dadra & Nagar Haveli	26.60	14.97	28	+77.69
27.	Bihar	26.01	19.94	25	+30.44
28.	Rajasthan	24.05	19.07	26	+26.11
29.	Arunachal Pradesh	20.09	11.29	29	+77.95

Cities with a Population of a million and above

Name of the city	Population
1. Calcutta (UA)	9,165,650
2. Greater Bombay (MC)	8,202,759
3. Delhi (UA)	5,227,730
4. Madras (UA)	4,276,635
5. Bangalore (UA)	2,913,537
6. Hyderabad (UA)	2,565,536
7. Ahmedabad (UA)	2,515,195
8. Kanpur (UA)	1,685,308
9. Pune (UA)	1,685,266
10. Nagpur (UA)	1,297,977
11. Lucknow (UA)	1,006,843
12. Jaipur (UA)	1,004,669

The metropolitan cities accounted for 5 per cent of the total population of the country at the 1971 census. They now account for 6.08 per cent of the total population. It must be mentioned that these figures are provisional but are indicative of the scale of these cities. The cities which have now crossed a millon after the 1971 census are Nagpur, Lucknow and Jaipur.

Intensify FP

The provisional results of the 1981 census indicate that there has not been any significant slowing down of the rate of growth. This calls for a detailed consideration of the implications of these results in relation to various aspects of population policy, with particular reference to family planning. In a country like ours where growth rates vary so widely from State to State and region to region it would seem more ap-

Literacy Rate

Sl. No.	India/State/Union Territory	Percentage of literates to total population 1971 Persons	 1971 Males	 Females	 Persons	 1981 Males	 Females
1	2	3	4	5	6	7	8
India		29.45	39.45	18.69	36.17*	46.74*	24.88*
States							
1.	Andhra Pradesh	24.57	33.18	15.75	29.94	39.13	20.52
2.	Assam	28.15	36.68	18.63	—Not available—		
3.	Bihar	19.94	30.64	8.72	26.01	37.78	13.58
4.	Gujarat	35.79	46.11	24.75	43.75	54.53	32.31
5.	Haryana	26.89	37.29	14.89	35.84	47.78	22.23
6.	Himachal Pradesh	31.96	43.19	20.23	41.94	52.36	31.39
7.	Jammu and Kashmir	18.58	26.75	9.28	– Not available—		
8.	Karnataka	31.52	41.62	20.97	38.41	48.61	27.83
9.	Kerala	60.42	66.62	54.31	69.17	74.03	64.48
10.	Madhya Pradesh	22.14	32.70	10.92	27.82	39.38	15.54
11.	Maharashtra	39.18	51.04	26.43	47.37	58.89	35.08
12.	Manipur	32.91	46.04	19.53	41.99	52.97	30.69
13.	Meghalaya	29.49	34.12	24.56	33.22	36.98	29.28
14.	Nagaland	27.40	35.02	18.65	41.99	49.16	33.72
15.	Orissa	26.18	38.29	13.92	34.12	46.90	21.11
16.	Punjab	33.67	40.38	25.90	40.74	46.59	34.14
17.	Rajasthan	19.07	28.74	8.46	25.05	35.78	11.32
18.	Sikkim	17.74	25.37	8.90	33.83	43.65	22.07
19.	Tamil Nadu	39.46	51.78	26.86	45.78	57.19	34.12
20.	Tripura	30.98	40.20	21.19	41.58	51.05	31.60
21.	Uttar Pradesh	21.70	31.50	10.55	27.38	38.87	14.42
22.	West Bengal	33.20	42.81	22.42	40.88	50.49	30.33
Union Territories							
1.	Andaman & Nicobar Islands	43.59	51.64	31.11	51.27	58.44	41.85
2.	Arunachal Pradesh	11.29	17.82	3.71	20.09	27.98	11.02
3.	Chandigarh	61.56	66.97	54.35	64.68	68.82	59.30
4.	Dadra & Nagar Haveli	14.97	22.15	7.84	26.60	36.19	16.75
5.	Delhi	56.61	63.71	47.75	61.06	67.96	52.56
6.	Goa, Daman & Diu	44.75	54.31	35.09	55.86	64.77	46.78
7.	Lakshadweep	43.66	56.48	30.56	54.72	64.97	44.21
8.	Mizoram	53.79	60.49	46.71	59.50	65.99	52.57
9.	Pondicherry	46.02	57.29	34.62	54.23	64.00	44.30

*Excludes Assam and Jammu & Kashmir

propriate to consider the issues involved on the basis of larger States or those that have the largest demographic impact. A superficial consideration of national average would not be appropriate in considering basic issues relating to the factors that tend to support high growth rates and one would have to consider growth rates in relation to broad regions and the bigger States. Based on the Census data and taking into consideration the assumption of the Expert Committee and keeping in view other data sources, it is possible to categorise the major States on the basis of birth rates and death rates. Such an assessment would indicate that Bihar and Uttar Pradesh are the areas of maximum concern since these States would appear to have both birth rates and death rates of a high order. These States are closely followed by Madhya Pradesh, West Bengal and Rajasthan. In all there States improvement in health conditions will result in an increase in population and, therefore, it would imply that fertility control measures would have to be of a very high level if growth rates have to be consciously reduced. The States of Gujarat, Haryana, Andhra Pradesh and Karnataka would appear to be areas where death rates are of a reasonable order but birth rates continue to be high. In these States, it would seem that fertility control certainly needs attention. In the States of Orissa, Punjab and Tamil Nadu, the birth rates are reasonable but death rates are rather high which would imply that if health conditions improve, there would be an increase in population. Therefore, at this stage it would be said that family planning measures in these States would have to be fairly intensive. It is only in Kerala and Maharashtra that maintenance of current levels of family planning would seem sufficient since these States have low birth and death rates.

The provisional Census results indicate very clearly that there has been almost no slowing down in the growth of population. Since death rates in certain areas may fall due to health measures this, in conjunction with high birth rate, would further lead to an increase in population. Without entering into the debate on correlations between economic and social measures with levels of fertility, there would appear to be a strong correlation between female literacy and fertility levels. Such correlations would strengthen the view that long term measures relating to female literacy would yield dividends. In this context, adult literacy, appears to calls for increasing attention. Also, since time would appear to be our scarcest resource, it would seem essential that a component relating to reduction in fertility is built into almost every programme of activity of Government so that there is a much wider spread and utilisation of agencies. The next two decades are in a large measure "the decisive decades" in terms of quality of life and the provisional results of the 1981 Census clearly indicate that there is no room for complacency. ☐

Economic Census

THERE are 18.39 million enterprises engaged in different economic activities other than crop production and plantations in the country, excluding Assam. According to provisional results of the Economic Census carried out in 1980 these enterprises have usual employment of 51.70 million persons. Nearly 61.2 per cent of the enterprises are from rural areas and they account for 46.4 per cent of the total employment. Establishments employing at least one hired worker constitute the remaining 25.9 per cent of the enterprises.

The non-agricultural enterprises form 91.0 per cent of all the enterprises and account for 94.5 per cent of total employment. As many as 18.9 per cent of the non-agricultural enterprises employing 44.3 per cent of the total number of persons usually working, are in rural areas.

Among the agricultural enterprises other than crop production and plantations 82.8 per cent are carried out without employing any hired worker and of these 87.9 per cent are in rural areas.

Uttar Pradesh with 11.8 per cent of the enterprises accounts for the largest share in the country. About 50 per cent of the enterprises both in terms of number as well as usual employment, are concentrated in the States of Uttar Pradesh, Maharashtra, West Bengal, Tamil Nadu and Andhra Pradesh.

As many as 18.5 per cent of the enterprises are operated without any premises, the variation being 9 to 28 per cent in different States. The enterprises are largely (92.1 per cent) perennial in nature. The enterprises working without power constitute 81.4 per cent of all the enterprises. The number of enterprises owned by scheduled castes account for about 9.9 per cent of all the enterprises.

New Achievements in Family Planning

There has been a steady improvement in the climate for family planning acceptance in the recent past. Performance figures received from various States and Union Territories for eleven months of 1980-81 (upto February, 1981) reveal that there was an increase of 13.6 per cent in sterilisations over the corresponding period of the previous year and about 30 per cent rise in the use of conventional contraceptives. The performance in IUD insertions also remained at the same level as in the corresponding period of last year. During the period 17.2 lakh sterilisations, 5.29 lakh IUD insertions and 35.42 lakh conventional contraceptive users were reported. Andhra Pradesh, Gujarat, Maharashtra, West Bengal and Delhi registered more than 80 per cent achievement of targets in sterilisations.

HUDCO Achieves Target

HOUSING and Urban Development Corporation (HUDCO) a Government of India Enterprise, has sanctioned 68 new schemes for construction of 94876 residential dwelling units and development of 1,390 site and services plots spread over 17 towns and cities in 12 states and several villages of Bihar, Gujarat, Karnataka, Kerala, Punjab and Andhra Pradesh. The project cost of these schemes is Rs. 39.69 crores for which HUDCO loan assistance will be of the order Rs. 21.11 crores. With this HUDCO has achieved the loan sanctioned target fixed by it for the year 1980-81. HUDCO sanctioned during 1980-81 loan amount of Rs. 160 crores for 340 projects to different borrowing agencies all over the country. These schemes, project cost of which is Rs. 250 crores, will help construct 260,000 dwelling units and development of over 6,500 plots.

Special Article

First Thoughts on the 1981 Census Results

Ashish Bose*

THE provisional population totals based on the 1981 Census of India were released with lightning speed on the 18th March, 1981 by the Census Commissioner, Shri P. Padmanabha. The reference date for the Census was the sunrise of 1st March, 1981. The revisional round was conducted from 1st to 5th March. Thus the provisional results were announced in less than two weeks from the date of completion of census enumeration work. Interestingly enough this speed cannot be attributed to modern computer technology. The credit must go to arithmetic and commonsense because the provisional totals were arrived at by chain-relaying the totals from the lowest level of enumerator to the top level of the Census Commissioner. This innovation in census administration was first introduced by Shri Ashok Mitra, the 1961 Census Commissioner and followed by Shri A. Chandra Sekhar, the 1971 Census Commissioner. Shri Padmanabha has not only kept up the census tradition but has in fact improved the presentation of the provisional results of the Census. In each State the Director of Census Operations has also produced a paper on the provisional population totals on the lines of the All India Census Paper. As all the State Census Papers are not yet available, our comments here will be restricted to 'Census of India, 1981 Series-I, India, Paper No. 1 of 1981—Provisional Population Totals'.

At the outset, it is important to note that the 1981 Census enumeration has yet to be conducted in Assam and Jammu and Kashmir; because of the turmoil in Assam, no dates for the houselisting operation and the census enumeration have been announced, while in the case of Jammu and Kashmir, it has been decided to conduct the Census from 20th April to 10th May, 1981 with the sunrise of 6th May as the reference date. Apart from Assam and Jammu and Kashmir, the 1981 Census enumeration was conducted throughout the country from 9th February to 28th February, 1981, except in some snow-bound areas in Sikkim and Uttar Pradesh and also in certain parts of Andaman and Nicobar Islands where the enumeration was carried out in September-October, 1980.

The second important point to note is that the provisional figures for India released by the Census Commissioner include the population figures of Jammu and Kashmir and also Assam, as projected by the Expert Committee on Population Projections set up by the Planning Commission (See Census of India, 1971, Series 1, Paper No. 1 of 1979—Report of the Expert Committee on Population Projections, 1979). The only adjustment made is in regard to Assam figures. As the 1981 Census enumeration was conducted in Mizoram (which is now a Union Territory), the enumerated population of Mizoram was excluded from the projected population of Assam (which included Mizoram in 1971). It follows, therefore, that the growth rates for India as a whole worked out in Census Paper No. 1 of 1981, do take note of Assam and Jammu and Kashmir on the basic of their projected figures. The figure for the growth rate will be modified or "corrected" after the census enumertion takes place in Jammu and Kashmir and if no census is conducted in Assam, the all India growth rate will have to be based on the projected figures of Assam.

It is most unfortunate that due to the disturbance in Assam, the proud record of over one hundred years of uninterrupted decadal Census in India was spoilt in 1981. The Census Commissioner, Shri P. Padamanabha has the following to say on this issue : "It is with a deep sense of despondency that one records that the Census of Assam could not be taken synchronously with the rest of the country. Due to the disturbed conditions there, neither the houselisting operations nor the census enumeration was possible and one looks forward to the census operations being conducted there soon."

The Government of India must not allow the case of Assam Census to go by default. It is in the interest of the people of Assam to get the 1981 Census successfully conducted. We believe that the agitators who opposed the 1981 Census have clearly lost the opportunity to demostrate through the latest Census figures the gravity of the problem of migration into Assam.

The projected growth rate of Assam for 1971—81 decade was 36.09 per cent but the *actual growth* rate of Mizoram (which was a part of Assam earlier) during 1971—81 was 46.75 per cent. It seems very likely that if a Census were to be conducted in Assam, the growth rate might turn out to be higher than the projected growth rate of 36 per cent. It will be hazardous to generalise from the data for Mizoram but we must note that for most of the States in India the actual Census count has revealed higher growth rates than the projected figures.

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We are aware that there is widespread misgiving in Assam (and quite justified too) that even if Assam cooperates with the Census authorities, the Census may *not* succeed in collecting reliable data on religion and language. In other words, there may be deliberate mis-reporting in regard to questions on relgion and language.

Our solution to this impasse is to canvas the 1981 Census questionnaire in Assam *with the question on religion and language deleted.* In the 1981 Census, the questions on birth place and migration are *not* included in the *universal* individual slip (i.e. to be canvassed from *all*) and have been included in the *sample* individual slip. If the Census authorities feel that they will not be able to collect reliable data on migration through the sample individual slip, the questions on birth place and migration can also be dropped. But the *total count* must be conducted in Assam, whether the detailed characteristics of population are collected or not.

The initiative for such an "abridged census" must come from the highest quarters. It should not be difficult for the Prime Minister and her colleagues to convince the people of Assam that it is in their interest to conduct a Census in Assam. The facts will speak for themselves and the vexed question of "foreigners" in Assam can be settled amicably and scientifically. In any case, the Assam Census should not be forgotten or written off. The least that the Government of India could do at this stage would be to get the whole question examined by a technical committee so that a contingency Census plan can be prepared which will enable the census authorities to conduct a Census the moment normalcy returns to Assam.

Population Growth Rates

We shall now briefly comment on the decadal growth rates of population. The all India picture is as follows :

Year	Population	Decadal growth rate (percent)	
1951	361.09	13.31	1941-51
1961	439.23	21.51	1951-61
1971	548.16	24.80	1961 71
1981	683.81	24.75	1971 81

It will be seen that the growth rate during 1971—81 based on the provisional figures, was slightly lower (by 0.05 per cent point) but when one deals with large numbers, this magnitude of change cannot be called significant.

Our analysis is that the growth rate during 1971—81 is slightly higher than that for 1961—71. This is so because of the following reasons :

(1) The reference date for the 1961 Census was 1st March but in 1971 because of elections, the Census was postponed by a month and the reference date was 1st April. Thus the growth rate figures for 1961—71 are for 121 months. In 1981, the reference date was 1st March. Thus the growth rate figures are for 119 months. If adjustment is made for this factor, we will have to add *at least one million* to the total population of 1981, because this is roughly the *net* addition to India's population every month. If the growth rate during 1971—81 were of the same order as in 1961—71 (i.e. 24.8 per cent for the decade without adjusting for one month extra in 1971), India's population in 1981 would have been 684.1 million instead of the provisional total of 683.8 million. That is to say, the margin would have been of the order of .3 million (300,000). Obviously, this would be completely wiped out if we add one million to the 1981 population. The growth rate, therefore, would be higher than 24.8 per cent for 1971-81 decade.

It is in the interest of the people of Assam to get the 1981 Census successfully conducted. We believe that the agitators who opposed the 1981 Census have clearly lost the opportunity to demonstrate through the latest Census figures the gravity of the problem of migration into Assam.

(2) The 1981 provisional figures are, in general, on the *high side* compared to the projections made by the Expert Committee. It is very likely that the acutal Census count in Jammu and Kashmir will reveal a higher figure than projected by the Expert Committee. And in Assam, the actual population is even more likely to exceed the projected population as migration from Bangladesh has been an important factor affecting the growth rate during 1971—81. Thus if adjustments (on the basis of the actual count) are made later for Jammu and Kashmir and also Assam, the all India growth rate figure is likely to be higher than that indicated by Census Paper No. 1 of 1981.

(3) In view of the greater complexity of problems of Census enumeration in 1981 compared to the situation in 1971, it will be realistic to assume *a higher order of under-enumeration in* 1981 compared to 1971 and 1961. While calculating decadal growth rate figures no adjustments are made for the under-enumeration in successive, censuses, the assumption being that the extent of under-enumeration is roughly the same. But this assumption is not always valid. In 1961, the net under-enumeration was of the order of 0.7 per cent while in 1971, it was 1.7 per cent. Our estimate is that in the 1981 Census, the net under-enumeration will be at least 2.0 to 2.5 per cent. The post-enumeration check will be conducted soon by the Registrar General and the actual position will be known after six months or so. If adjustments are made for the net omission in the 1971 and 1981 Census, the actual growth rate during 1971—81 may be higher (though marginally), than the figures revealed by the provisional census tables.

(4) Finally, the provisional total is invariably ía, than the actual total. To the extent the final exceed the provisional totals, the growth rate óni- higher.

It seems likely that the geometric annual growth rate of population during 1971—81 would be of the order of 2.23 to 2.24 per cent compared to the annual growth rate of 2.22 per cent during 1961—71.

Literacy Rates

According to our analysis of the first results of the 1981 Census, the most shocking revelation is not the high growth rate of population but the high illiteracy rate of the population, especially the female population. The all-India picture is as follows :

Percentage of Literates to Total Population

	1971	1981
Persons	29.5	36.2
Males	39.5	46.7
Females	18.7	24.9

The progress of literacy during 1971—81 has indeed been very slow. More than 75 per cent of the female population and more than 50 per cent of the male population is illiterate.

When we study the State figures, the situation is even more depressing. The female literacy rate is a good index of social development.. One can get a clue to explain the slow progress of family planning if one examines the figures for female literacy rates, especially in rural areas. The rural/urban breakdown is not yet available. The figures given below are for the total population of the literate and the figure for the rural population would be even lower.

Percentage of Literates among the Females
1981

India	24 9
Rajasthan	11.3
Bihar	13.6
Uttar Pradesh	14.4
Madhya Pradesh .	15.5
Gujarat	32.3
Tamil Nadu	34.1
Punjab	34.1
Maharashtra	35.1
Kerala	64.5

The States of Rajasthan, Bihar, Uttar Pradesh and Madhya Pradesh which have the lowest literacy rates are precisely the States with high population growth rates as indicated below :

	Percent increase in population
Rajasthan	32.4
Bihar	23.9
U.P, ...	25.5
Madhya P!adesh .	25.2

Obviously, these growth rates are influenced by ation and until detailed data on migration are able, no adjustment for migration can be made. must have been considerable migration into han during 1971—81 on account of settlement of new areas. This is a positive development but the fact remains that even without migration, Rajasthan has a high growth rate of populaion.

Family Planning

The situation in the States with comparatively high female literacy rates is somewhat complex as will be evident from the following figures.

	Percent increase in population 1971—81
Punjab .	23.0
Gujarat .	27.2
Maharashtra	24.4
Tamil Nadu	17.2
Kerala .	19.0

Here again, one has to account for the migration factor before coming to firm conclusions. Nobody is surprised about the figures for Tamil Nadu known for its good family planning work and for Kerala where the social forces of health and education have raised significantly the age at marriage and made a dent on fertility. One is, however, somewhat puzzled about the high growth rates in Gujarat and Maharashtra which, according to family planning performance data, are "good" States and should have recorded a much lower rate of population growth. Perhaps migration could explain to some extent the high rate of growth. The same may be true of Punjab.

According to an analysis of the first results of the 1981 Census, the most shocking revelation is not the high growth rate but the high illiteracy rate, especially of the female population.

The really odd case is Orissa which has unexpectedly shown a very low growth rate of population, namely, 19.7 per cent during 1971—81. The female literacy rate in Orissa was only 21.1 per cent and there is no record of rapid economic development in that State during 1971—81. The family planning performance data, however, show a good record of family planning work in Orissa and the programme seems to have worked much better in Orissa than in Bihar, U.P. M.P. and Rajasthan. For example, according to the official family planning statistics, as of March 1980, the "equivalent sterilisation" rate (that is to say, converting all family planning methods practised into sterilisation to measure the impact on birth rate) in Orissa was 3.7 per thousand, compared to 1.4 in Bihar, 2.6 in Madhya Pradesh, 1.9 in Rajasthan and 1.4 in Uttar Pradesh. The "equivalent sterilisation" rate was as high as 7.5 per thousand in Gujarat and 5.0 per thousand in Maharashtra.

Why should then Gujarat have a growth rate of 27.2 per cent during 1971—81 ? And Orissa only 19.7 per cent ? If the Family Planning Department wants to take credit for Orissa, they will have to explain why things are different in Gujarat.

In our view, no firm analysis can be made in the absence of detailed 1981 Census data (especially on

(*continued on page* 18)

Special Article

The Monsoon Experiment (MONEX) Its Early Results

P.K.Das*

A dropwindsonde being released from US aircraft

The article reviews the Monsoon Experiment (MONEX) of 1979. A brief description is provided of new observational techniques that were used for the first time in India during the summer of 1979. The early results of the experiment are subsequently, in the context of space meteorology and mathematical models of the monsoon.

The Monsoon Experiment (MONEX) was conducted in the summer of 1979. It was oragnised, jointly, by the World Meteorological Organization (WMO) and the International Council of Scientific Unions (ICSU), as a sub-programme of a larger experiment—the Global Weathter Experiment. Now that the experiment is over, and nearly two years have elapsed after its termination, it is apposite to ask ourselves: What did we set out to do and what did we achieve ?

It is only appropriate to emphasize that MONEX was not expected to solve all problems of the Summer Monsoon. Its objectives were limited because it was an one-time exercise in data collection, but what was important, was the fact that it was conducted on a scale that was never envisaged in earlier experiments. Many observational techniques were novel; they were used for the first time in India.

An attractive feature of MONEX was that it enabled one to take advantage of the larger Global Weather Experiment. Some idea of dimensions may be had from the fact that in May of 1979, as many as 52 research ships were deployed over the tropical oceans between the latitudes 10°N and 10°S, while 104 aircraft missions were successfully completed over different parts of the Pacific, the Atlantic and the Indian Ocean during the same period. For MONEX alone, we had

- five research ships from the USSR,
- three civilian research aircraft from the USA.
- four research ships and one aircraft from India,
- one research ship and a programme for monitoring winds with balloons from France.

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*Director General of Meteorology

In addition, the United States moved one of their geostationary satellites—GOES Indian Ocean—to a location on the equator at 60°E to cover MONEX region. Clouds and cloud clusters that were recorded by the cameras of GOES were beamed towards Bombay by yet another geostationary satellite, METEOSAT, which was launched earlier by the European Space Agency.

Fortysix scientific missions were flown by US aircraft for the Arabian Sea phase of the experiment, with a similar number for the Bay of Bengal part of MONEX. The US aircraft were equipped with dropwindsondes. This was an instrument package fitted with a tiny parachute. The instruments were released from the aircraft, and they recorded the temperatures and winds over different layers of the atmosphere during their descent with the parachute.

The Indian ships were equipped, again for the first time, to measure upper winds. This was achieved with the help of balloon-borne omegasondes. It used a navigational system based on the intersection of radio beams, on very low frequencies, to track the path of a balloon which, in turn, provided a measure of the speed and direction of the wind.

An Indian aircraft was also used, for the first time in India, for aerial observations over the monsoon regime. The equipment on the aircraft were assembled in very short time and, despite difficulties, it recorded useful observations. In figure 6 we show the winds around a low pressure system of the coast of Saurashtra-Kutch recorded by the Indian aircraft.

MONEX Management

An International MONEX Management Centre was set up in New Delhi to supervise the Monsoon Experiment. A large number of scientists from different countries worked at this Centre to plan the experiment.

Currently the Centre in Delhi have published 14 volumes of pre-checked MONEX data, and the final form of the data are likely to be ready before the end of this year.

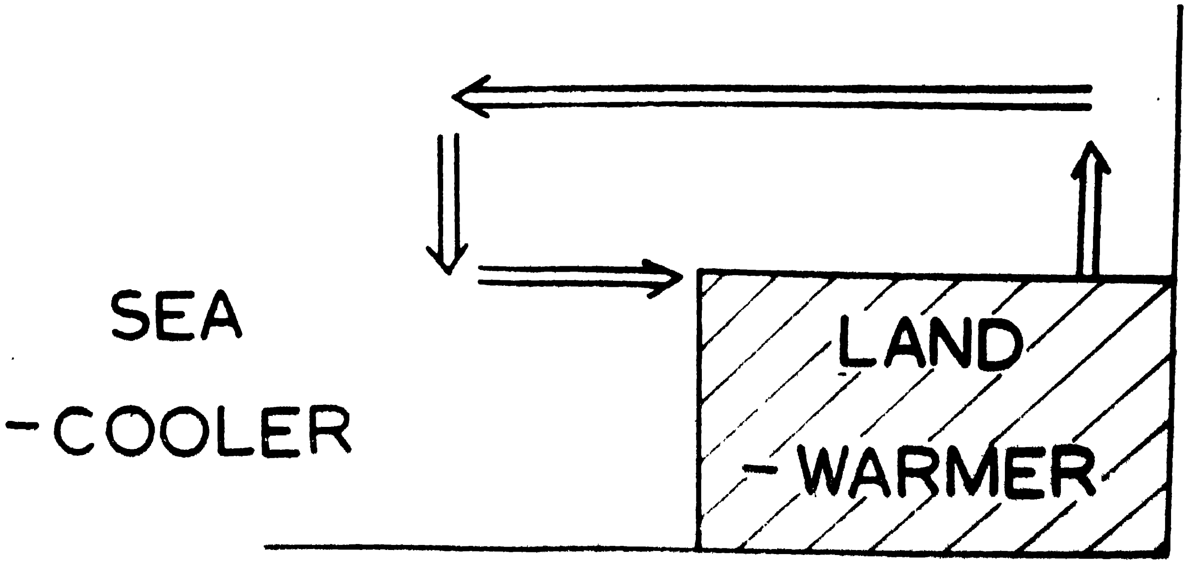
Scientific Objectives

India receives over 70 per cent of its annual rain in a hundred-day period beginning with first of June and ending in mid-September. On the distribution and timeliness of monsoon rain depends our annual production of food. Estimates suggest that to maintain the present level of nutrition, our annual food production should be around 200 million metric tonnes by 2000 A.D. At present, in a good monsoon year we reach a figure slightly above 130 million tonnes. Clearly, the task ahead is difficult but not impossible. Our success will depend on how quickly we are able to modernise and improve our techniques for predicting monsoon rain. If the likelihood of a comparatively poor monsoon could be anticipated in advance timely action could be initiated to ensure equitable distribution of foodgrains, and the expenditure on drought relief could be minimised.

There are three features on which advance information is needed:

- approximate date of onset over different climatical regions of the country,
- an estimate of the total quantum of monsoon rainfall from June 1 to September 15,

Figure 2 : The sea breeze : Day cycle



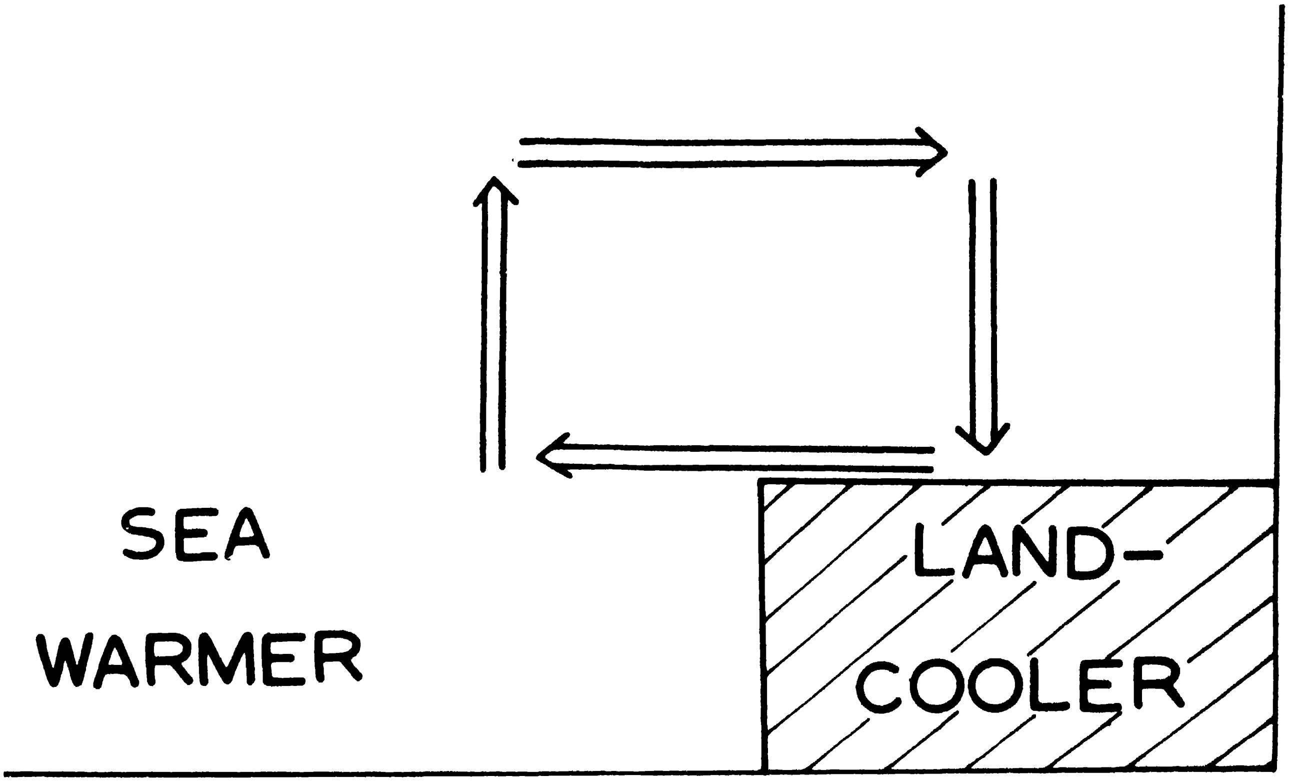


Figure 3 : The Sea Breeze : Night cycle

- likely periods of heavy or lean rainfall of 5—7 days duration within the monsoon period.

The main purpose of MONEX was to build up a data-base on which research could be organised. Specifically, our intention was to use the data to understand what physical processes lead to a monsoonal system of winds.

Monsoon features

The monsoon is generated by the same type of conditions that produce land and sea breezes, namely, an uneven heating of the land and the sea.

Along a coastline on a sunny day the sea and the land are warmed by the sun. But, there is a sharp difference in the way the land and the sea respond to solar heat. The land warms fairly rapidly ; and the heat that it receives remains near the surface and very little is able to penetrate more than a few centimetres downward through the soil. Consequently, the temperature of the land and that of the overlying air rises. On the other hand, solar heat is able to penetrate to a greater depth in the sea because of the stirring action of water. As the water mixes, the sun's energy is spread through a greater depth. Water requires more heat than the soil to warm up. This difference makes the land much warmer than the sea.

The warm air above the land rises and at some height above the air flows out to the sea. To replace the rising air over land there is a breeze from the cooler sea to the land, which makes the coastal areas pleasant on summer days.

At night the land cools off much faster so that the winds blow in a reverse direction. The cool air from the land moves out to the sea in the form of a reverse breeze. This cycle of events is shown in a simplified manner in figures 2 and 3.

In summer, which corresponds, roughly, to the day-time sea breeze, the tropics receive more heat from the sun. The heated tropical air rises and flows to the south of the heated land and there is a large return current from the sea to the land to compensate for the rising air. This is the situation in June when the sun's heat is most intense over the semi-arid zones of north-east India and the middle-east. The monsoons represent, in a broad manner, the return flow from the sea to the land in the form of a gigantic sea breeze. It must be noted that despite its similarity to a sea breeze, the path of the monsoon is more complicated because of its much larger scale. When we consider the movement of air on such a large scale, we need to take into account the rotation of the earth and the retarding influence of friction as the air flows over land and sea.

Driving Monsoon Engine

One of the major gains of MONEX was new information on radiation. Prior to MONEX, little was known of the excess radiation that accumulates over the deserts of Saudi Arabia, for example. These sources of solar heat are one of the big forces that drive the monsoon engine.

Another area on which MONEX yielded new data was the influence of oceans. It was discovered, for example, that there was a sudden cooling of the Arabian Sea and the surrounding regions of the Indian Ocean just prior to the onset of the monsoon. It is not yet clear what brings about a chilling effect on the sea surface. To complicate matters further, oceanographic observations reveal a zone of very cool waters off the coast of East Africa. This is known as the Somali Current. Interestingly enough, the Somali current appears to be coupled with a narrow zone of very fast moving air at a comparatively low altitude of 1.5 km above the sea surface. It has been contended by some that the impact of a low level fast moving jet of air could help to drive the surface waters from the eastern coast of Africa into the interior of the Arabian Sea. To compensate for the dispersal of the surface water there must be an ascent of cooler water from the depths of the Arabian Sea. The entire process is still imperfectly understood but this observational result is obviously important because a cool sea would tend to extract heat from the overlying atmosphere.

In 1972 a series of natural disasters drew the attention of scientists to the problems of changing climate. In the Sahel zone south of the Sahara several years of drought led to a complete failure of rains. The monsoon rains of 1972 were below our normal expectations. In the same year, a sudden warming of the coastal waters off Peru led to a serious loss in the fishing industry of that country.

Such disasters have led to a search for worldwide circulation patterns which might relate the behaviour of rains over Africa with India and the western tropical Pacific. Almost 60 years ago a relation of this nature was postulated by Sir Gilbert Walker. It is now known as the Southern Oscillation. It suggests an inverse statistical relation between what happens over Indonesia, India and the eastern South Pacific Ocean. If there are circulation patterns of this nature and they fluctuate in intensity from year to year, it may help us to understand why the monsoon is good in one year and comparatively poor in another. The data that we have collected during MONEX are now being utilized for research on this problem.

A Powerful Tool

A powerful tool which has now emerged is concerned with the design of mathematical models. Such models seek to simulate the response of the atmosphere to external disturbances. The advantage of a model is that it enables one to perform control experiments on the atmospheric response if the Arabian Sea was much warmer than usual. A model could be also designed to find out the impact of large-scale denudation of forests on monsoon rainfall.

Scientists in India now have the computing capability through electronic computers to devise experiments of this kind. A model experiment which was designed by Indian scientists recently suggests that the reflectivity of the soil could have a large impact on monsoon rain. Consequently, if we remove the vegetation cover from the earth's surface by deforestation, we are likely to increase the soil's reflectivity because bare soil is more reflective to solar radiation than one which has a canopy of vegetation. The model also suggests that many short term variations in monsoon rainfall could be related to fluctuations in the earth-atmoshphere radiation balance over the deserts of the middle east.

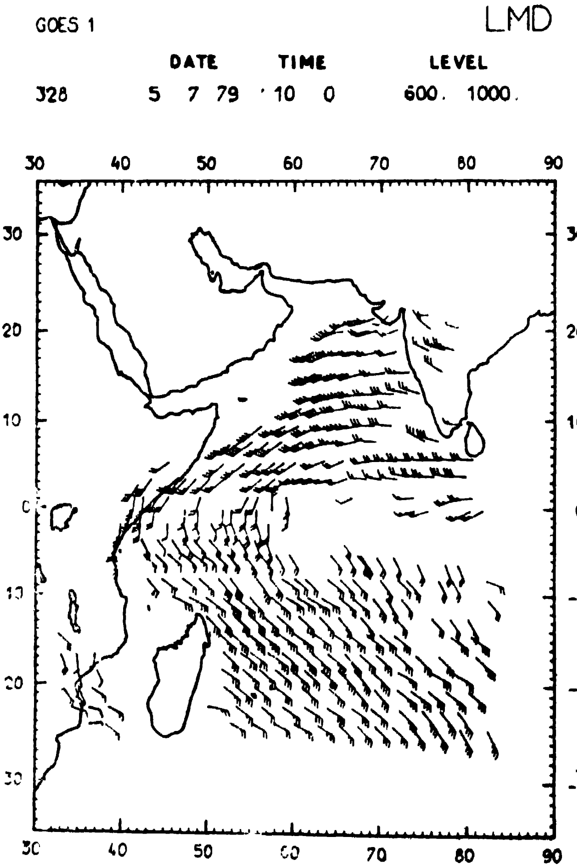


Figure 4 : Winds derived from weather satellite data

Better Management of the Economy

(*Continued from page* 3)

In its working, it may not be possible for the Commission to completely avoid impinging upon ideological questions of economic and political nature. But this can be solved through deft handling by the political leadership. What is important is that the Commission should provide short and practical frameworks for action on matters referred to it and the Government should implement them immediately with the requisite political will. ☐

Space Meterology

Space Meteorology in India has derived considerable impetus from MONEX. Several ecientists from the Indian Space Research Organization (ISRO) and the Space Applications Centre (SAC) took part in MONEX, along with meteorologists and earth scientists. By tracing the movement of clouds at frequent intervals, meteorologists have been able to derive the pattern of winds flowing over different parts of the Arabian Sea. Figure 4 shows the winds that we derived from satellite observed clouds over the Arabian Sea. A wide coverage of upper winds of this magnitude was not possible before MONEX. These winds were supported by the tracks of a series of balloons launched by France from Seychelles. The balloons devised by scientists from France had an in-built mechanism which enabled them to fly at a constant altitude. In figure 5 we show the path of one of the balloons. It is interesting to note that a balloon which was launched over the Indian Ocean was carried by monsoon winds right up to Burma. With India's First Geostationary Satellite (INSAT-I) just around the corner—it is due to be launched in 1981—it is perfectly reasonable to expect interesting developments in this area within the next few days.

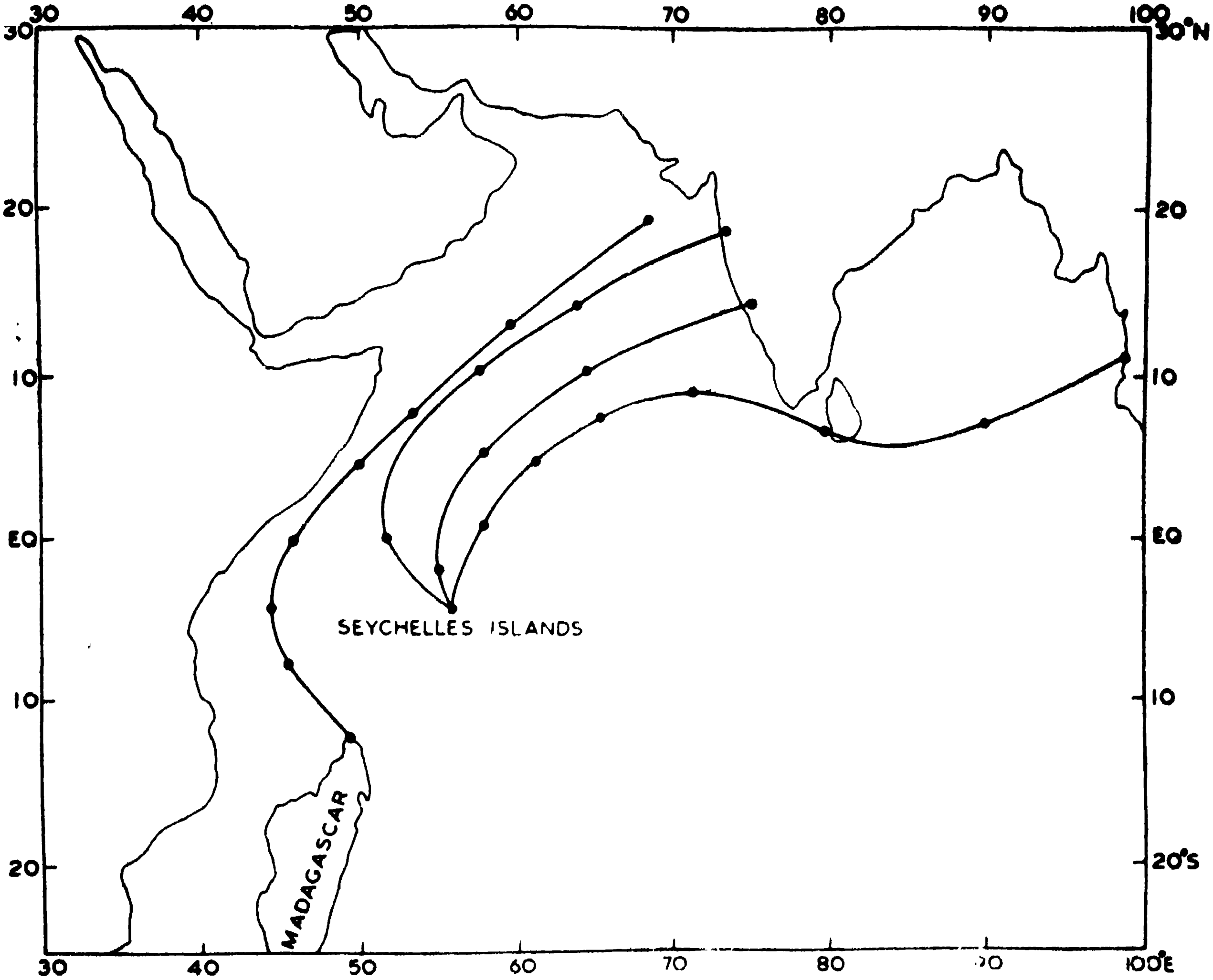


Figure 5 : Tracks of constant level balloons released from Seychelles and Madagascar

The basic components of a long term research programme on the Indian monsoon are now beginning to emerge. A wide variety of observing platforms, such as, omegasondes and radiometersondes coupled with constant level balloons, have increased our monitoring capability very considerably. This will be further enhanced when India launches its first Geostationary Satellite in 1982. Along with data collection, it is equally important to realise that mathematical

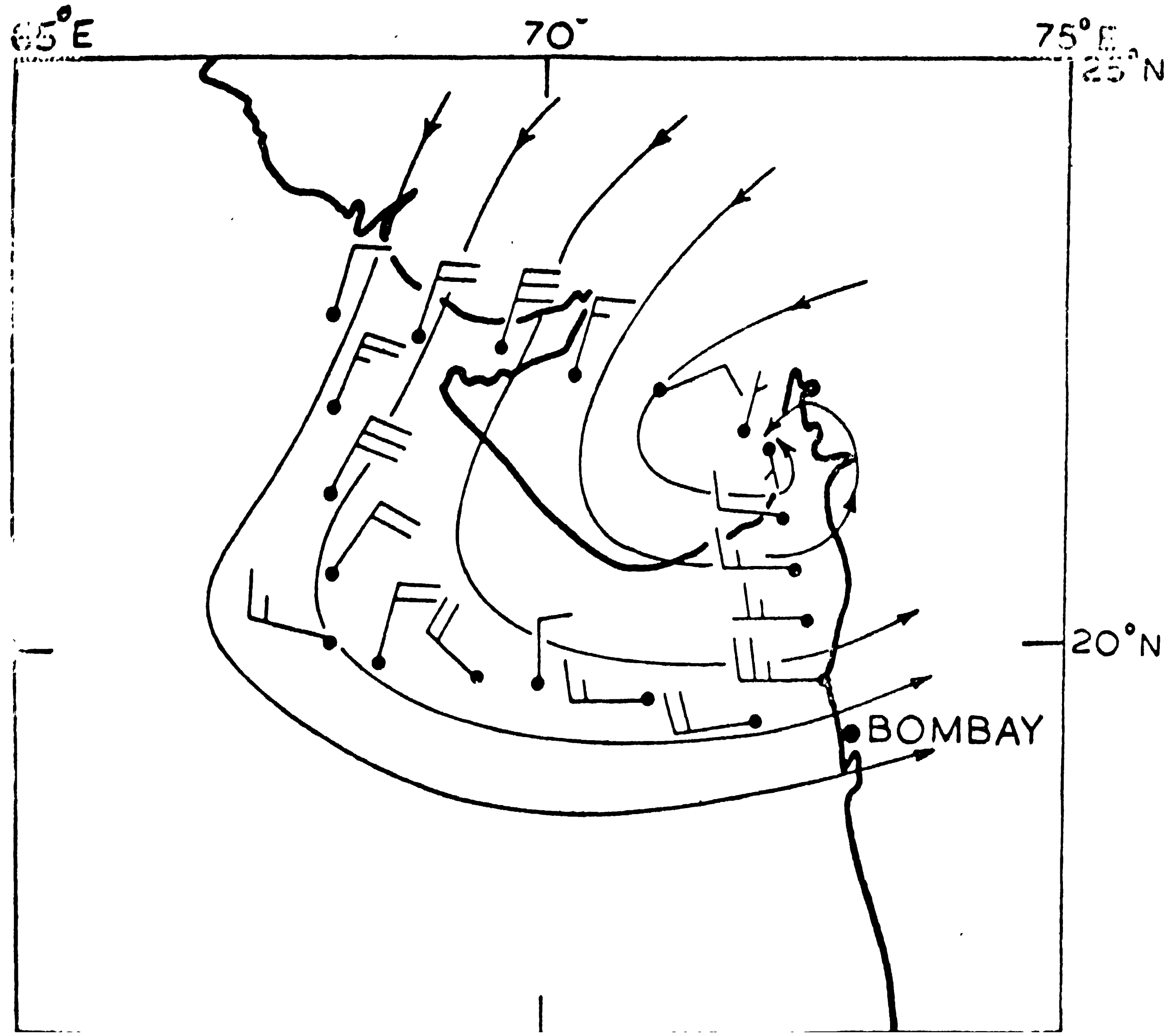


Figure 6 : *Winds recorded by Indian aircraft around a centre of low pressure over Saurashtra-Kutch*

models now provide Indian scientists with the means for extracting meaningful inferences from large volumes of data. MONEX has initiated us to some areas where our surveillance needs to be strengthened. One such area is the pattern of radiation over different parts of the land. Another area, on which MONEX data suggest further emphasis, is on the transport of moisture over different regions of the country. We still need to improve our understanding of how monsoon moisture that is fed into our vast country every year is transformed into life sustaining rains for agriculture. To improve our prediction capability, the first Monsoon Experiment clearly points to the need for building up further experiments of this kind. Indian scientists are fast acquiring the capability of mounting such experiments on their own in the years to come.

First thoughts on the 1981 Census Results

(*Continued from page* 12)

age structure) and without matching Census data with SRS data (Sample Registration System for collecting data on births and deaths) and family planning performance data. The experts in the Census Department and the SRS Division of the Census Office as well as the experts in the Family Planning Department will have to do a lot of home work before we find a satisfactory explanation for the persistence of the high growth rate of population in India.

Finally, we must put on record the fact that as of 1st March 1981, the Indian Census was the biggest Census operation in the world. It was a tremendous job which was competently handled by Shri P. Padmanabha and his colleagues. The speed and efficiency with which the provisional results of the 1981 Census were announced by the Census Commissioner should be the envy of census takers all over the world. ☐

Planning and the Task of Nation Building

Narayan Datt Tiwari*

DEMOCRATIC PLANNING can only fully succeed when the major objectives and targets of the plans are generally accepted as a national consensus. There are numerous programmes which have unanimous sanction of all political parties and all sections of the population. For implementation of such programmes, we cannot rely only on the grassroot level officials alone; the dedicated cadres of all political parties and social workers have to lend their helping hand. This calls for a new style of training of party cadres, at the grassroot levels, in the philosophy of reaching the unreached in the backward and rural areas and urban slums to inculcate the methodology of self-reliance, cooperation and optimisation of existing resources. Service to the down-trodden in any form, for a reasonable period, by getting immersed in the challenging work of nation-building at the level of small hamlets, households and needy villages or urban slums alone, should be recognised as the valid passport entitling a person to party and political position.

The main objectives of the 6th Plan include significent set-up in the rate of growth of the economy, eradication of poverty and unemployment, removal of inequalities in income and wealth, reduction of regional disparity and improvement in quality of life.

Secondly,

pld is to dev0-51 and 1978-79, the underlying trendlation of growth of national income was 3.5 per cent, of overty cultural production 2.7 per cent and industrial production 6.1 per cent. In a mixed economy, the control of the government on the overall level of investment is limited and what the Plans can regulate more effectively is the level of public investment. Though the impact of public investment on the overall pace of expansion has been marked, yet, for numerous reasons, returns in a majority of public enterprises have been below targets. While the growth performance of the Indian economy improved substantially during the planning period, it was lower than expected. This can be attributed to deficiencies in implementation, or the gap between promise and performance, the inability to maintain public investments at targetted levels, and deficinecies in the management and utilisation of assets.

As far as modernisation is concerned, one index is the composition of the national income which has changed. The share of mining, manufacturing, construction and productive infrastructure has increased. Further, the technolgy of production in agriculture and industry, and the institutional framework within which ecnomic activities are conducted have changed substantially. There has been tremendous growth in human skills leading to modernisation and technological advance. However, the pace of diffusion has varied from one sector to another.

Self-reliance has several dimensions, such as reduction in the dependence on foreign aid, diversification of domestic production and a consequential reduction in imports for certain critical commodities, and the promotion of exports to pay for imports. The extent to which net aid contributed to plan finance in different plan periods is an important indicator by which self-reliance can be measured. The data indicate that net aid as a percentage of plan expenditure rose from 9.1 per cent in the First Plan to 33.9 per cent in the Annual Plans (1966-67—1968-69) and thereafter declined to around 9.0 per cent in the Fifth Plan. Another example of the success of self-reliance is the fact that the tempo of investment in critical sectors like power could be maintained in the Fifth Plan despite the balance of payment burden of the oil price increase because of the limited dependence of imports for equipment supplies. Moreover, the improvement in our capacity to weather international shocks has to be seen in the context of the very rapid deterioration in recent years in the international environment within which the economy has to function.

Social Justice, as articulated in the plans, has two major dimensions : improvement in the living standards of the poorest groups in society and a reduction in inequalities in asset distribution. Various analyses of the movement of the poverty percentage over a period of time do not show a significant upward or downward trend. Data on the distribution of assets bring out the very low level of asset holdings of the poorest 30 per cent in rural areas. In the area of social justice,, on the whole, the pace of movement has been much smaller than what is acceptable or possible within the framework of the plans, and a greater degree of re-distributive bias has to be built into our development effort.

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*Minister of Planning and Labour and Deputy Chairman, Planning Commission. Excerpts from 'Dr. Zakir Hussain Memorial Lectures 1981.'

Sixth Plan Objectives

The National Development Council has approved the Sixth Five Year Plan, 1980—85. Its main objectives include a significant step-up in the rate of growth of the economy reduction in the incidence of poverty, unemployment, and in inequalities of income and wealth, reduction of regional disparities, improvement in the quality of life with special reference to the economically and socially handicapped population, speedy development of indigenous sources of energy and achievement of economic and technological self-reliance. The strategy adopted for Sixth Plan consists essentially of moving simultaneously to strengthen the infrastructure for both agriculture and industry so as to create conditions for an accelerated growth in investments, output and exports, and to provide, through special programmes designed for the purpose, for increased opportunities for employment, especially in the rural areas and the unorganised sector and to meet the basic minimum needs of the people. Stress has been laid on dealing with inter-related problems through a systems approach, greater managerial efficiency and intensive monitoring in all sectors, active involvement of the people in formulating specific schemes of development at the local level, and in securing their speedy and effective impementation.

The public sector Plan outlay has been fixed at Rs. 97,500 crores at 1979-80 prices, which in real terms is higher by 80 per cent than the outlay in the Fifth Five Year Plan. Considerable emphasis has been laid on investment in the infrastrure sector such as coal, petroleum, power and transport because of their critical importance for the growth of the economy. Substantial increase has also been provided in the Plan outlays for special and backward areas programmes so as to reduce regional disparities. The Plan envisages an overall average annual growth rate of 5.2 per cent. In terms of value added, agriculture is expected to grow at an average annual rate of about 4 per cent and industry at 7 per cent. While the outlays on all major sectors of the economy would at least be double in nominal terms compared to the Fifth Plan, the growth rate of outlays in rural development and irrigation is even higher. This reflects the high priority given to the objectives of employment generation and removal of poverty.

While meaningful solution to the problem of poverty can only be found in the context of a rapidly expanding economy, more direct means of attacking the problem will have to be adopted in the short-term. The alleviation of the condition of the poor, the neglected, the underserved and the down-trodden has to be given top priority in our plan commitments. The percentage of population below the poverty-line in 1977-78 was 48.13 which in sheer absolute figures means about 305 million. All States have a sizeable segment of the population below the poverty-line, but eight to nine States have the largest component. These States also have a major share of the scheduled castes and scheduled tribes population. Policy planners and development managers have to be particularly innovative in their approach to, and strategy for, the removal of poverty in these areas of the country where it is strongly entrenched. The Sixth Plan places a high priority on the reduction of poverty and securing redistributive justice.

Household Approach

The household approach to poverty eradication has the following major elements :

1. Transfer of assets like land and livestock to families with no asset base ;
2. Provision of productivity raising inputs, credit and services ;
3. Employment generation with integrated attention to salaried, self and wage employment ;
4. Providing the basic human needs, such as drinking water, rural housing, rural electrification, education, nutrition, health care etc. ; and
5. Promotion of the small family norm.

In saying that the unit of attention under anti-poverty programmes such as the Integrated Rural Development Programme, which will cover all the blocks in the country in the Sixth Plan, must be the household, it is being emphasised that it is no longer enough to define the targets of the vast array of governmental programmes in the rural areas merely in terms of operational or programmatic goals, such as the total number of beneficiaries covered, the quantum of loans and subsidies disbursed, the number of milch cattle distributed and so on. It is essential that the development machinery at all levels comes to assess these programmes in terms of their contribution to end objectives. Their benefits must ultimately result in a direct tangible improvement in the income and consumption of each individual household below the poverty-line. This in the ultimate analysis, is the household approach to planning for poverty eradication as opposed to the macro-level approach at the national and sub-national levels which has been relied upon predominantly so far. The advantage of regarding the family as the unit for planning purpo[illegible] from the fact that dependency ratio [illegible] mounting [illegible] to family. Obviously, the provis[illegible] to come to a wage labourer with a wife and [illegible] child is going to raise consumption [illegible] family to a greater extent than it w[illegible] with an old dependent mother and [illegible] small children. From the point of vi[illegible] programme under which the job was provid[illegible] the benefit conferred on the two families would be the same. However, from the point of view of raising the level of living and quality of life of each individual member of the family, or to put it differently, from the point of view of raising per capita family income above the poverty line, the action of the programme in the case of the second family would have to be supplemented through further measures. To adopt the household as the basic unit of poverty eradication in no way conflicts with the need to ensure that benefits are shared equitably within the family. Viewing the needs of the household as a whole helps to draw attention to the need for special programmes for women and children.

Household below poverty line

What does the household approach entail in operation terms? It means identifying households below the poverty line. This is already being done under the Integrated Rural Development Programme. The complexity and magnitude of the task involved here is prone to be exaggerated. The village-level worker and the Panchayat Secretary are expected to live within their circle and maintain lists of all families within their jurisdictions. Most of them already have a fair indication of the families which are eligible and deserving under the criteria adopted. Villagers themselves have a very good idea of who the poor among them are. Rough and ready surveys of the kind already being carried out under the IRDP are undoubtedly necessary to supplement what is already known. Local school teachers and college students can always be called upon to assist. Also, the Agricultural Census Operations, due to commence shortly, have been designed to collect data relevant to this programme. This will help in ensuring that all households are identified within a reasonable period of time.

Social justice, as articulated in the Plan has two major dimensions—improvement in the living standard of the poorest groups in society and reduction in inequalities in asset distribution.

The rationale and approach underlying the programme should be widely known. This is for two reasons.

Firstly, those who fall within the target group must become aware of this fact. A register should be compiled for each block, villagewise, open for inspection, in which each household in the target group can find itself listed. This will help in creating a climate in which the poor come to demand inputs, credit and services as something due to him, instead of waiting upon Government programmes as passive beneficiaries.

Secondly, the reason for surveying poor household is to devise a package of measures suited to the situation of each family and designed to bring it above the poverty line. If the family owns land or is engaged in a traditional village industry the first priority will be to increase the productivity of the farm or non-farm enterprise by an appropriate package of inputs, services and credit. Where the household has a zero asset base, it may have to be assured through asset transfer programmes again financed by credit. Norms can easily be developed of the income that can be expected to be generated by such units of activity as a tubewell, a flock of sheep, a bullock cart, an improved loom and working capital for wool and so on. After raising the productivity and income of the household in this manner, it might still be left with surplus family labour. The next step would be to assess whether any of the family members could be trained suitably through programmes such as TRYSEM. Alternatively, unskilled members of the family might prefer to accept employment under the National Rural Employment Programme. It has, however, to be recognised that rural works programmes suffer from the limitation that women are unable to work away from the home, especially on earthwork, in some parts of the country, and that even among men only the able-bodied are able to do so. Families with a high proportion of dependents may have to be assisted through social security measures such as "Food for Nutrition" and old age pensions, if they are to achieve minimum standards of income even after all the aforesaid alternatives have been explored. Other families which are "fully employed" in the time dimension of the concept, that is to say with no idle labour time left, for example agricultural labourer households, may still fall below the poverty line because of the low level of agricultural wages. The solution in their case would be vigorous enforcement of minimum wages legislation and the encouragement of collective bargaining. The effective implementation of the National Rural Employment Programme will contribute significantly to preventing the exploitation of agricultural labour, especially in the slack season, when wages tend to be low.

The household approach to poverty alleviation briefly outlined above could lead to a more speedy elimination of destitution and human misery. It will aim to improve the economic well-being of the family with particular attention being paid to women and children through a blend of opportunities, including he establishment of creches and balwadis which should enable children who today are unable to go to school to receive education.

This approach, strengthened by the "Training and Visit" model of extension, can finally be used effectively for promoting the voluntary adoption of the small family norm. It needs hardly any emphasis that, in the ultimate analysis, the success of our efforts in eliminating poverty and unemployment would depend on our success in the population stabilization programme.

Minimum Needs

The Minimum Needs Programme will have a substantial contribution to make to the success of the IRDP. The one without the other would be incomplete. The two programmes have to be integrated at the area level. This objective is proposed to be achieved by enabling the poorest families to acquire productive assets, technology and skills as would make their economic activities viable. These families will also need support from major components of Minimum Needs Programme like health, water supply, education, rural electrification, rural roads, education, housing, nutrition etc. The concept of Minimum Needs Programme emerged and crystallised out of the experience of the previous plans that neither growth nor social consumption can be sustained, much less accelerated without being mutually supportive. For optimising benefits these programmes need to be taken as a package and related to specific areas and beneficiary groups. A sectoral approach, as at present in which programmes are formulated and implemented in isolation will not be adequate either for the overall development of the area or for bringing about the desired distribution of benefits. The need for integration is especially greater at the micro-level where the programmes are implemented. As stated earlier, it will be necessary to link the prospective beneficiaries under the IRDP to these social services, particularly programmes like applied nutrition, compulsory elementary education adult education, family welfare, children's and women's welfare activities, rural roads, rural water supply. The household-centred poverty alleviation strategy will thus lead to integrated socio-economic development.

Of the approximately 20,000 families in a block, about 10,000—12,000 families, on an average, are expected to be below the poverty-line. Under this programme, the intention is to provide specific assistance to 3,000 families on an overage, in each block during the Sixth Plan. This is a massive programme [illegible], directed towards the poorest of the poor. Here I would like to agree with my colleague, Dr. M. S. Swaminathan that this will "call for a closer alliance between brain and brawn". This is where the higher education system, with thousands of institutions spread over the length and breadth of the country can, through several programmes, forge effective links with block administrators and accept, as essentially an educational experience, such task as environmental improvement, drinking water supply, eradication of specific diseases like blindness in children caused by vitamin A deficiency, malaria, filariasis, removal of illiteracy afforestation, eco-development etc. All these tasks will have both educational content and economic impact. It will bring the masses and classes together, the colleges nearer to the community.

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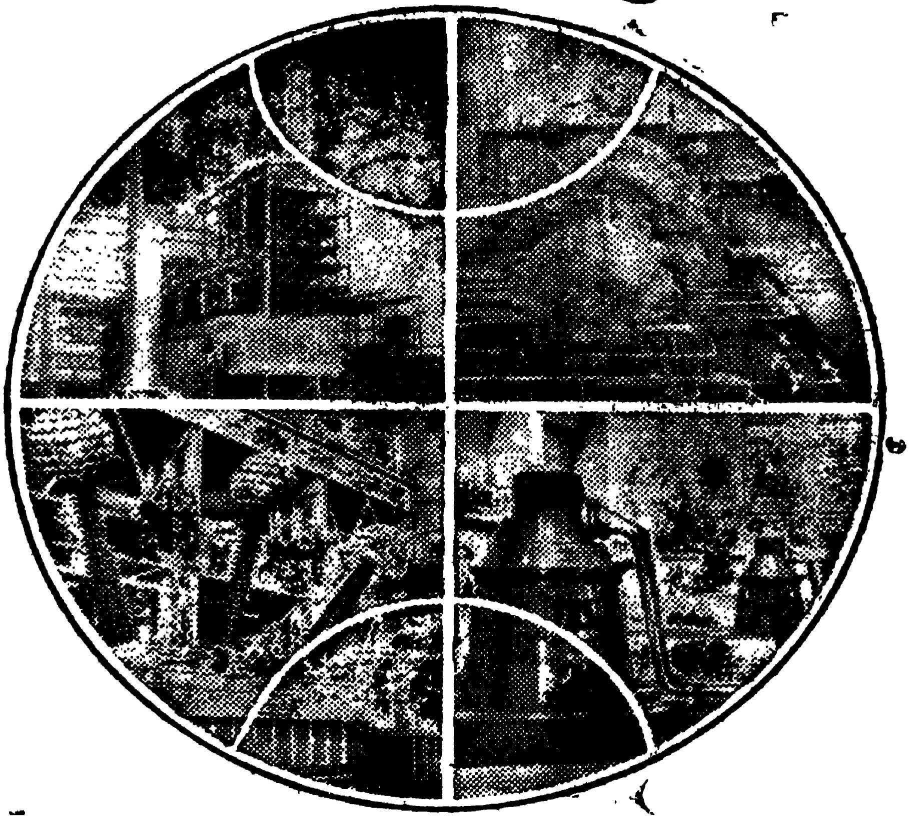

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Damning the Drought

V. Sripati Rao*

LARGE areas of Andhra Pradesh are drought prone. They face acute shortage of water during agricultural season due to erartic monsoons which have been playing havoc with the state and its rural population for the last few years. Rivulets, tanks and irrigation well of the area do not have water in summer & winter seasons when the need for the same is felt more. Water of major rivers like the Godavary and Krishna do not reach these areas. Nearly 1/3rd of the State's population is now on the mercy of monsoons.

In 1979-80 rains were scanty. Various crops raised over vast areas withered way and the state witnessed alround devastation. Out of 213 Taluqs 131 were in the grip of drought and 128 lakhs of agricultural labourers and around 54 lakhs of small and marginal farmers faced acute shortage of food grains. And so was the year 1980-81. Due to certain wavering South West disturbances, Telengana area in AP had 83 percentage less than the usual rainfall and Rayalaseema suffered about 29 per cent shortfall. All the Rayalaseema districts and majority of Telengana districts like Nalgonda. Ranga Reddy, Adilabad, Mahbubnagar together with certain areas in the districts of Medak, Kareemnagar, Warangal, Nizamabad, Nellore and Prakasham faced acute shortage of food grains and fodder. Nearly 17.5 lakhs of small and marginal farmers were severelly effected by the dry spell. In normal course, 142 lakh acres are cultivated in this area, but due to untimely and scanty raifall 17 lakh acres of crop was severely damaged and 693 villages faced acute shortage of drinking water. Arund three lakhs of cattlehead faced shortage of fodder.

In response to the SOS of the State, Government of India deputed a team to go into all aspects of the drought situation of the State. On the basis of the report the Central Government have sanctioned Rs. 23.33 crores of expenditure including Rs 22 crores of non-plan expenditure to meet the needs of the State, in addition to a short term loan of Rs. 26 crores (Rs. 14 crores for Kharif and Rs. 12 crores for Rabi) for purchase and distribution of inputs The Union Ministry of Agriculture has also allotted over and above the carry over of 60,880 tonnes of food grain from the previous year, 63,000 tonnes under the food for work programmes. The State also received 42,000 tonnes of foodgrains with a cash component of Rs. 9.75 crores under the national rural employment programmes. To tide over the crisis and to provide drinking water, an amount of Rs. 32 lakhs has also been sanctioned under non-Plan and Rs. 684 lakhs under Plan for digging up of wells and for providing permanent arrangement for drinking water.

The State Government on its part has also done much to alleviate the sufferings of the small and marginal farmers, and the labour in the effected areas. Watchful Government, during the month of September 1980 itself, sensed the forthcoming evil effects of erratic rains and released Rs. 70 lakhs in September itself and another Rs. 300 lakhs during October. Knowing that the situation is becoming alarming, the Government released a further amount ot Rs. 7.5 crores in October itself and placed the amount at the disposal of the district collectors. Sensing that certain areas in the districts of Kareemnagar, Adilabad and Nizamabad are facing severe shortages, they were given an additional amount of Rs. 75 lakhs to meet immediate requirements. Until now, State Government has released an amount of Rs. 28.95 crores. Out of this the share of Rayalaseema is Rs. 15 crores, Telangana Rs. 10.8 crores and the remaining went to Coastal Andhra which is around Rs. 3.15 crores.

In addition to these measures Government of A.P. has prepared a plan to solve the drinking water problem. In addition to 124 rigs already under the use, the district collectors have been authorised to procure rigs from neighbouring areas. An amount of Rs. 6.5 crores is to be spent on this count. Plans have been chalked out to supply fodder for animals at subsidised rates. Under National Employment Scheme, 20,000 tonnes of foodgrains are being supplied for various employment oriented schemes organised for the rural labour. Small term and long term loans are being offered to small and marginal farmers, and collection of revenue has been suspended in the drought effected areas. School children have been exempted from payment of school fees in all such areas. The Chief Minister who is abreast of the situation, has visited several areas in the State to supervise the relief measures undertaken by various agencies. He has created a separate cell at the highest level to deal with problems arising out of drought. Senior officials incharge of this cell are in touch with the district administrators almost every day.

The Minister of Revenue disclosed in the A.P. Assembly that Government is considering revision of famine code which came into being during the British rule. With the revision of this famine code, farmers in the effected areas will get full remission of land revenue.

Essential items such as food, oils, sugar, kerosene, soaps, etc. are being sent to the drought effected areas. Several new works and employment opportunities are being created to provide employment to the rural labour. Ministers incharge of their districts are keeping constant vigil so that vagaries of nature do not cause irreparable loss. Andhra Pradesh, which survived famine of the sixties and seventies is now in a much better position to deal with the situation. ☐

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Economic Development of Malaysia

Navin Chandra Joshi*

MALAYSIA, a federation of Malaya and the colonies of North Borneo (now named Sabah) and Sarawak is one of the most prosperous countries in South-East Asia. The Peninsular Malaysia consisting of 11 States of Malaya secured its independence from Britain on August 31 1957 and became a member of the Commonwealth of Nations. Singapore, Sabah and Sarawak joined it to form Malaysia on September 16, 1963. But Singapore separated from it in August, 1965 on political and economic grounds.

The common heritage of the present 13 federating States of Malaysia is the history of British colonial administration. Peninsular Malaysia strategically placed at the crossroads of maritime trade between China and India, had long been the meeting point of Hindu and Buddhist influences. The population of the country was around 12 million in 1975 with a density of about 100 persons a square mile, and a population growth rate of about 2.7 per cent per annum. Roughly half of the people are Malays, one-third Chinese, and one-tenth Indians. Most Malays live in rural areas and are engaged on agriculture in small holding and fishery.

The total area of the country is 1,28,444 square miles of which 40 per cent is the land area. The States of Sabah and Sarawak account for 60 percent of the land area while the 11 peninsular States have the remaining 40 per cent. Alluvial plains formed by short rivers flowing from the mountains, are suitable for the cultivation of rice. Malaysia is today the world's largest exporter of tin, rubber and Palm oil. Besides being a principal exporter of tropital hardwoods, it has reserves of oil and natural gas. The present GNP per capital is about US $ 1100. While the Malays predominate in the agricultural sector, non-Malays are in commanding positions in secondary and tertiary sectors.

Sustained Economic Development

Sustained economic development in Malaysia did not begin till the 1960s. The Korean War had generated a major economic boom but that was followed by a period of modest growth. The average growth rate of real GNP was 7 per cent per annum during 1961—76, despite sharp fluctuations in prices of principal exports, confrontation with Indonesia in the first half of 1960s, the separation of Singapore in 1965 and the riots in 1969. The average growth in per capita GNP was 4 per cent during 1960—76. There has been a sharp rise in the productivity of rubber, a big push to export of palm oil, extraction of timber and rapid manufacturing growth of 13 per cent per year during this period.

Exports of merchandise account for about 50 per cent of the gross domestic product. Exports rose from Malaysian(M) $ 3.2 billion in 1961 to M $ 13.4 billion in 1976—a fourfold increase. More than half of the earnings in foreign exchange are from rubber. The share of timber, palm oil, petroleum and manufactured goods has been going up. While the acreage under rubber increased by 13 per cent during 1960-75 its production has doubled now, indicating an average improvement in yield by 4 per cent a year. Between 1974—77 the Malaysian output of crude oil more then doubled to nearly 2,00,000 barrels a day. Most of the oil is in the States of Sabha and Sarawk.

The impact of Indian industrialists on the modern economic scene of Malaysia has been significant as manifested by the fact that at the end of November 1979, 66 joint venture projects with Indian interests had been approved for establishment in Malaysia.

The manufactured goods of the country are mainly the electronics, garments, textiles and footwear. The establishment of free trade zones by the Government was instrumental for the rapid growth of exports of manufactured goods in the 1970s. The small holders of land had replanted 68 per cent of their acreage by 1975 and this helped in increasing the availability of agricultural raw materials. The agricultural sector yields an output of about 6 per cent per annum. Rubber and palm oil account for half of the total output. The rate of agricultural production is high and yet despite the apparent success in small scale agriculture, the income disparity between traditional agriculture and the rest of the economy has widened.

Racial Dualism

In Malaysia the dualism often found in developing countries is exacerbated by its existence not only in the contemporary modern sectors, but also in agricultural and mining sectors. In addition to traditional economic dualism, there is racial dualism also. The outcome of such kinds of dualism has therefore, been a substantial degree of inequality of incomes and wealth of the people. Although the Malays account for more than half the population, almost 80 per cent of them work in rural areas, primarily in traditional agriculture. The Chinese holdings are twice the holdings of the Malays. In the corporate sector Malays have only two per cent of the share capital. Thus the bottom 40 per cent of the population receive only two per cent of the total income while the top five per cent receive 30 per cent. This gives a grim picture of inequality of incomes leading to a widening dualistic character of the Malaysian society.

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As for inflation, the Malaysian economy has been susceptible to the global phenomenon. Between 1972 and 1974, the general price level increased by 30 per cent. While the real purchasing power of exports rose by 60 per cent in 1972-74, the expansionary impulse in domestic prices was more than 30 per cent of GNP in 1973-74. Except for this brief period, Malaysia has had a remarkable price stability. During 1960's the average rise in consumer prices was only one per cent a year. The average rate of inflation in the country during 1970-76 was about 6.7 per cent per annum. Malayasia has had a lower rate of inflation and it did not rely on the use of foreign loans tied to import credits. On domestic front, Government has scrupulously avoided recourse to inflationary means for financing its budget deficits.

Malaysia has provided a fundamentally attractive environment for investors from abroad. Its policy is to encourage projects to be undertaken on a joint venture basis.

The country has given special attention to rural development and eradication of poverty. About 49 per cent of households in 1970 had incomes below the poverty line and 86 per cent of these were in rural areas. This position is quite akin to that prevailing in India. In 1976 the number of people below the poverty line declined to 40 per cent. The recent deterioration in terms of trade of rubber growers has aggravated income inequality.

New Economic Policy

Today two serious problems persist—the widespread poverty and the racial imbalances in economic and social activities. Hence the Government adopted a New Economy Policy in 1971 to restructure the Malaysian Society and reduce poverty But the task is difficult one in view of the rising population even when the economic growth is steady.

Unemployment in Malaysia has been rising with increase in the spread of education. While the labour force has been increasing at the rate of 3.2 per cent per year, unemployment has been rising from 6 per cent in 1960 to 8 per cent in 1970. This increase suggests that the 6 per cent annual rate of growth in GNP in 1960s was insufficient even with heavy emphasis on agriculture to generate an adequate number of jobs in the country. During 1970-75 the rate of job creation averaged 3.3 per cent a year which was slightly faster than the growth in labour force.

Under the New Economic Policy a restructuring of the society is taking place in three ways—increasing the share of Malays in employment in the modern sector (and within this sector, improving the incomes of Malays by improving their skills), increasing the Malays' share of corporate ownership and increasing the number of Malay entrepreneurs along with the managerial control by Malays. While Malays make up 52 per cent of the labour force, presently they constitute only 29 per cent of the labour content in the manufacturing sector of the country.

Economic Planning in Malaysia is done on a five-year basis. Both public and private sectors take it seriously. A large and increasing share of development expenditure has gone to the agricultural sector since independence. The First Five-Year Plan (1966-70) envisaged an outly of M$ 14,742 million. The Second Plan (1971-75) had an expenditure of M$ 16,150 million with major focus on eradication of poverty and the restructuring of society. In the Third Plan (1976—80) agriculture, industry and infrastructure received an outlay of 40 per cent each. A number of public enterprises have been set up in the country since the beginning of planning era. Development programmes have been well-funded and implementation has been effective. Despite the significant increase in government expediture in industry, government has not significantly taken over the traditional activities of the private sector.

Farm Sector Market-oriented

The farm sector of the economy is more market-oriented in Malaysia than in many other developing countries. Malaysian rice is consumed locally and additional rice is imported to meet domestic needs. Shifts in patterns of agricultural growth now seem to be necessary. Substantial technological changes are taking place in electronics—one of Malaysia's principal export industries. Industrial sector is also now required to accommodate much greater Malay participation than in the past. High priority needs to be given to ensure favourable climate for private investment, both domestic and foreign. It is also necessary to maintain the country's position in external and domestic markets.

It is true that rapid economic growth is essential for the successful restructuring of Malaysian society. At the same time, however, attempts to force the pace of restructuring may result in less investment by non-Malays and also a slower growth which would be self-deafeating. And yet the Government has to implement the New Economic Policy by trial and error as there are no precedents to follow. The land development programmes need to be implemented more vigorously and quickly. Although Malaysia is rich in natural resources, growth rates in rubber, palm oil, petroleum and forest products are likely to be lower in future than in the past. Hence rapid industrial growth becomes increasingly more essential for successful economic performance.

Malaysia has provided a fundamentally attractive environment for investors from abroad. Stability of government, freedom in politics, minimal interference by government, ample availability of finance, financial credit worthiness of the country, substantial base of infractructure, abundant natural resources, plentiful supply of relatively well-educated labour, the comparative honesty and efficiency of government administration—all these factors are quite important for boosting Malaysian economy in futre.

Guidelines

The Industrial Coordination Act, effective from May, 1976, for controlling establishment of industrial units has had a dampening effect on both domestic and foreign investment. Government has now cleared the misgivings and hopefully, further investment will take place in larger measure. It now welcomes foreign investment in the Malaysian manufacturing sector. Its policy is to encourage projects to be undertaken on a joint venture basis. The existing guidelines to new projects as well as to substantial expansion and diversification in the existing projects are as follows:—

(1) For industrial projects substantially dependent on the domestic market, there will be majority Malaysian equity.

(2) For projects utilising important non-renewable sources, particularly at extractive and primary processing levels, at least 70 per cent Malaysian equity (including 30 per cent) 'bumiputra' is requird

(3) For projects manufacturing substantially for the export market, foreign majority ownership is permitted. If the case warrants, even 100 per cent foreign equity may be considered.

These guidelines are not rigid and the Government is prepared to accommodate all views as long as the benefits are fairly shared between foreign investors and Malaysia. The country intends to give every assistance and support to prospective investors for setting up projects utilising the domestic resources.

India has established a number of joint venture projects in Malaysia. These ventures are doing well in a number of of fields of manufacture. Indian businessmen initially came to Malaysia for trade. But many of them chose to settle there permanently. Indian workers came to Malaysia to assist in development effort in the rubber plantations and government programmes. Indian industrialists have during the last decade or so, gone to Malaysia with new technology and know-how. Their impact on the modern economic scene of Malaysia has been significant as manifested by the fact that at the end of November, 1979 sixty six joint venture projects with Indian interests have been approved for establishment in Malaysia. Out of these, 40 are now in operation. The total amount of Indian investment in these projects is estimated at about M$ 70 million. The bulk of Indian investment in Malaysia is in the food manufacturing industry (M$ 51.4 million) especially in the areas of palm oil refining, manufacture of palm oil-based products and other food products. The second major sector with substantial Indian investment is the textile industry (M $ 6.5 million) followed by the transport industry ranking third (M$ 4.6 million).

Indian can further assist Malaysia in setting up maturlurgical industry and power generation, provide wide range of consultancy services and training facilities, and supply railway rolling stock. In the high technology captial-intensive area too India can contribute by participating as sub-contrators with third parties in the field of engineering and construction. Malaysia recognises that India's industrial capability and her own industrial potential can be combined into mutually beneficial projects that will benefit not only Indian industrialists but also the Malaysian people and the country's economy.

Membrane Lungs

'MEMBRANE LUNGS' is a stationary diaphragmatic oxygenator a device capable of performing the main functions of the human lungs. Created by Soviet engineers and medical men, it consists of a transparent cylinder in which veinous blood of a dark cherry colour is turned into crimson arterial blood that carries oxygen and consequently life to every cell of the body. This device is being used in the clinic for the performance of operations on the open heart and for the intensive and long-term treatment of patcints suffering from acute respiratory insufficiency.

They employed Polymers in the design as they would not start a reaction with the blood, discharge harmful substances into it and favour the formation of thrombuses The new device can be switched either to the veinous line of the apparatus of artificial blood circulation, or to the artierial one. The transparent housing allows the surgeon and the perusiologist, (specialist controlling the "heart-lungs" apparatus) to observe the process of gas exchange constantly. These oxygenators joined to the vessels of patients for a long time have proved to be reliable and highly effective. This has opened up an optimum way of distributing streams of gas and blood divided by a semi-permeable membrane. Free ventilation of gas chambers takes place in the membrane lungs, the same as in natural ones. Air with the products of respiration is removed into the surrounding space, while the blood having received the necessary dose of oxygen returns to the patient's organism.

(Soviet Features)

V.R.C. and Handicapped Persons

Santosh Malviya Premi

TO ASSESS the Vocational and phychological needs of the physically handicapped persons and also to help them in their rehabilitation the Directorate General of Employment and Training, Ministry of Labour, Government of India had set up two Vocational and Rehabilitation Centre at Bombay and Hyderabad in 1968. These centres have helped many physically handicapped persons in getting gainful employment. Eight more centres have been set up in Jabalpur, Delhi, Kanpur, Ludhiana, Madras, Calcutta, Ahmedabad and Trivandrum

The V. R. Centre estabilshed at Jabalpur in 1972 is only one of its kind in Madhya Pradesh. It caters to the vocational and physiological needs of the blind, deaf-mute and orthopaedically handicapped from all over the State. To study and evaluate the physically handicapped persons and later to guide them towards accepting and holding suitable independent. productive and responsible positions in life are the main objectives of this centre. Handicapped persons come from all over Madhya Pradesh to attend the Centre. The Centre also holds evaluation camps once in a month. Similar camps are held twice at 'District Headquarters for the benefit of those who cannot report at the centre due to practical difficulties.

First of all, keeping in view the background of each handicapped client, he is placed for testing and evaluation in the workshop. This training lasts for 30 days.

Regular conferences, of Superintendent, Staff-Members, Rehabilitation Officer, Psychologist, Foreman, Intake Assistant, Special Employment Officer (as Guest Officer) are held and case-wise history of every physically handicapped client, during or at the end of the period of evaluation, is discussed and after it the final vocational plan is chalked out for client and individual vocational evaluation report is prepared.

For the work of self-employment, self-loan facility is provided by Nationalised Banks to those who are not suitable for salaried jobs due to either their disabilities or lack of education. A stipend of Rs. 100 per month for a maximum period of one year is given by Social Welfare Department to a certain number of physically handicapped persons undergoing training known as 'Inplant Training'.

A blind man at work

Due to severe disability some physically handicapped persons require certain essential physical aids. Through Lion's Club, other service clubs, as well as various individual philanthropists, the handicapped persons get help like tricycles, wheel chairs, crutches, artificial limbs etc.

Some More Facilities

(1) 'Free Pass (Bus)' facility is provided by M.P State Road Transport Corporation to all those handicapped persons attending the V.R.C. for purpose of evaluation or other rehabilitation services.

(2) 'Railway Concession' is also provided to all severely crippled and blind persons.

(3) Handicapped persons between the age of 18 to 45 are eligible for registration at V.R.C.

(4) For the benefit of men from distant places, attending the centre, a hostel is provided.

(5) All the services of the centre are free. During the evaluation period extending over 30 days Rs. 75 is given to every client. Those who are admitted at VRC or outside establishments, for Inplant Training Scheme of Social Welfare Department, get Rs. 100 (one hundred) per month as stipend for a maximum period of one year.

It will be a great service to the Handicapped if able citizens could make the handicapped persons aware of these facilities available to them at various Vocational and Rehabilitation Centres. ❑

IDBI : A Pace-Setter

Anant Bhadviya*

INDUSTRIAL Development Bank of India (IDBI) was established on July 1, 1964 under the Industrial Development Bank of India Act, 1964 as a wholly owned subsidiary of the Reserve Bank of India. In 1976, its ownership was transferred to the Central Government. The bank has been assigned a special role to play in the matter of (i) planning, promoting and developing industries to fill vital gaps in industrial structure, (ii) providing technical and administrative assistance for promotion, management or expansion of industry, (iii) undertaking research survey and techno-economic studies in connection with development of industry, (iv) coordinating, guiding, and monitoring the entire range of credit facilities offered by other financial institutions to the small and cottage sector and (v) working as an Export-Import Bank of the country. Thus the Bank is the pivot for the entire industrial-cum-financial circle of our economy.

Sources of Finance

The authorised share capital of the IDBI was Rs. 50 crore in 1964-65. It rose to Rs. 100 crore in 1978-79 and further to Rs. 200 crore in 1979-80. Its paid-up share capital touched Rs. 90 crore in 1978-79 from Rs. 10 crore in 1964-65. The most important source of the Bank's fund, the repayment of past assistance, rose from Rs. 5.5 crore in 1964-65 to Rs. 259.5 crore in 1978-79 and further to Rs. 315.8 crore in 1979-80. Out of the Bank's total resources of Rs. 4,593.3 crore generated so far, repayment of past assistance accounts for Rs. 1,504.7 crore constituting 32.8 per cent of the total resources. The second source is borrowing from the Reserve Bank of India's National Industrial Credit (long term operations) Fund. As against Rs. 2.2 crore in 1964-65 the amount of borrowing from this source has gone upto Rs. 199.3 crore in 1978-79 and to Rs. 200 crore in 1979-80. Borrowing by way of bonds, the third source, started in 1971-72, the amount raised was Rs. 12.7 crore in that year, Rs. 121.0 crore in 1978-79 and Rs. 375.1 crore in 1979-80. In addition there are some other sources like interest, commission, borrowing from the RBI, Government of India and Life Insurance Corporation, Deposits from companies and sale of investments.

The IDBI's operations showed a tremendous spurt during the last two years. Sanctions and disbursements in these two years accounted for about 2/5ths of the total sanctions and disbursements over the 16 years of the Bank's operations.

Disbursement of Funds

Since inception, IDBI's funds have been disbursed in two forms: Direct Finance to industrial units and Refinance to financial institutions. The amount disbursed as direct finance to industrial units in 1979-80 was Rs. 247.7 crore as against Rs. 274.1 in 1978-79. Amount disbursed as refinance in 1979-80 was Rs. 587.2 crore as against Rs. 405.6 crore in 1978-79. Out of its total disbursement since its inception, direct finance to industrial units accounts for Rs. 1204.4 crore constituting 26.2 per cent of total and Refinance accounts for Rs. 2,407.3 crore. So far the Bank has repaid its loan to the extent of Rs. 116.6 crore to Government of India and Rs. 327.6 crore to Reserve Bank of India.

Trends in Assistance

The IDBI's operations showed a tremendous spurt during the last two years. During 1979-80 (July to June) sanctions and disbursements under the Bank's various schemes of assistance registered growth rates of 31 per cent and 23 per cent respectively over the increases of 47 per cent and 43 per cent achieved in the preceding year. Sanctions and disbursements during these two years alone accounted for about two-fifths of the cumulative sanctions and disbursements over the 16 years of the Bank's operations.

During 1978-79 IDBI crossed the Rs. 1,000 crore mark and sanctioned Rs. 1,094.6 crore on 30,407 applications. During the next year Rs. 1,434.5 crore were sanctioned on 55,733 applications. Actual disbursements of assistance also went up from Rs. 679.7 crore in 1978-79 to Rs. 834.9 crore in 1979-80.

The assistance sanctioned during 1979-80 is expected to catalyse an investment of the order of Rs. 2,600 crore. The assisted projects, it is estimated, would increase industrial output by Rs. 2,500 crore and generate additional direct employment for about 3.5 lakh persons. Comparative figures for the year 1978-79 are Rs. 2,300 crore, Rs. 2,100 crore and Rs. 2.16 lakh persons respectively. Cumulatively the Bank's sanctions since inception upto the end of June, 1980 reached a level of Rs. 5,679.4 crore on 1,35,770 applications and disbursements aggregated Rs. 3,611.7 crore. This assistance is estimated to have catalysed an investment of about Rs. 11,700 crore and directly created 15.5 lakh new jobs.

Small Scale Sector and Backward Areas

Industrial Development Bank of India provides assistance to small sector through refinance and Bills—rediscounting schemes. The assistance sanctioned under the Refinance Scheme during the last two years alone formed 3/5th of the cumulative assistance extended to this sector since its inception. During 1979-80 such refinance sanctioned was Rs. 440.5 crore to 53,064 units compared to Rs. 286.6 crore provided to 27,992 units during the year 1978-79. The average size of refinance sanctioned per application came down to Rs. 0.83 lakh from Rs. 1.02 lakh in 1978-79 indicating an increasing share of relatively small sized units. Refinance assistance disbursed for this sector rose (by 56 per cent) to Rs. 290.4 crore during 1979-80. Assistance, under the head Bills Rediscounting Scheme, was almost negligible prior to 1976-77. But it reached a level of Rs. 26.5 crore during the year 1979-80 in comparison to Rs. 16.4 crore in the previous year. In this way, the total assistance sanctioned to small sector during the last 16 years reached the level of Rs. 1,264 crore.

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The Bank is playing active role in developing the industrially backward areas. During 1979-80 the IDBI **sanctioned Rs. 584.3 crore to (247) backward districts** specified by Planning Commission, which accounts for 47.9 per cent of the total project assistance of Rs. 1,219.1 crore, while during 1978-79 it sanctioned Rs. 364.3 crore which accounts for 39.4 per cent of the total project assistance of Rs. 925.7 crore. Since 1970-71 when a special programme for the development of backward areas was introduced, aggregate assistance of Rs. 1,998.6 crore or 44 per cent of the total assistance has been sanctioned to backward areas, while since inception in amounts to Rs. 2,043.3 crore or 42.5 per cent of the total assistance of Rs. 4803.1 crore. IDBI's assistance to backward areas flows through Direct Industrial Assistance, Refinance and Bills Rediscounting Schemes. Out of the total assistance of Rs. 2,043.3 crore given so far to backward areas, sanctions flow under these schemes for Rs. 957.0 crore, Rs. 886.8 crore and Rs. 199.5 crore respectively.

Industrywise Distribution of Assistance

Industrial Development Bank of India has divided different industries into 5 major heads, namely (a) Basic industries (b) Capital goods industries (c) Intermediate goods industries (d) Consumer goods industries and (e) Services. Their shares in the total assistance sanctioned from July 1964 to June 1980 are, 25.5 per cent, 15.3 per cent, 19.7 per cent, 26.0 per cent and 13.5 per cent. Maximum share is received by textile industry (15.1 per cent) and then services (13.5 per cent) machinery (other than electrical) 9.7 per cent) and fertilizers (7.5 per cent) from the assistance sanctioned so far. During 1979-80 maximum share went to services (20 per cent) and then textiles (14.5 per cent), fertilizer (9.2 per cent) and cement (5.7 per cent) while in 1978-79 maximum was given to services (16.4 per cent) and textiles (15.4 per cent), basic metal industries (5.8 per cent) and basic industrial chemicals (5.8 per cent).

Profit

Profits of IDBI have been increasing steadily. In 1974-75 it earned a profit of Rs. 4.47 crore only while in 1978-79 the profit was Rs. 22.54 crore. In 1979-80 the Bank's earnings rose to Rs. 28.06 crore.

Thus the IDBI has been working as an important source of finance. In years to come, it will have to bear more responsibility for meeting the rising demand of financial assistance. It is therefore, essential for the Bank to increase the resources and explore some new avenues like public-deposits etc. to augment its funds. Some suggestions in this direction are as follows: It should coordinate the activities of its associate financial institutions to remove regional, industrial or economic imbalances. Delay in processing will have to be avoided to render useful assistance. Industries providing mass-consumption-goods which are in short supply should be given preference and their percentage share in total assistance should be increased. The IDBI should open a Rural Development Wing for providing loans for electricity, housing, drinking water sewerage, roads, hospitals and schools in rural areas.

No doubt the IDBI with its efficient multi-farious activities will be able to propel fast the wheels of financial-industrial sector to achieve maximum growth and prove itself a pace-setter of the economy.

Integrated Rural Development

A NATIONAL SEMINAR on Integrated Rural Development was held recently under the aegis of Sri Rama Krishna Mission Vidyalaya, Coimbatore. Some of the recommendations made by the seminar are given below :—

1. Various agencies involved in rural development should co-ordinate their efforts.
2. Block should be considered as the appropriate unit of micro level planning. This implies micro-planning by all the villages concerning all the families.
3. Block level planning should be based on natural, animal and human resource survey; it should provide minimum needs and give due attention to different sectors i.e., agriculture, dairy, animal husbandry etc
4. Planning for agricultural sectors should ensure optimum and rational use of water resources and include steps to make the holdings economical.
5. Job opportunities should be increased within the villages and cottage industries should be helped in marketing the finished products at economical prices.
6. Balwadis should be established in each revenue village to improve the condition of pre-school children and lactating mothers as well as pregnant women. Non-formal education should also be imparted.
7. The resources, expertise and manpower at the disposal of the voluntary agencies should be integrated in the Block Plan. These agencies should be associated in the activties started by/under SFDA Rural Development Programme and other such schemes.
8. Local leaders should be identified, trained and involved in planning and implementation of various rural development works.
9. Elections to cooperatives and local bodies should be held regularly. In the case of village panchayats, possibilities of evolving a system of choosing representatives, which will keep the party politics away should be explored.
10. A coordination committee should be set up at the district level to function as link with the District Development Council and to concretise the activties of the Integrated Rural Development.
11. Cooperative Marketing Societies should be organised to market the agricultural produce. Also Industrial Service Societies and Rural Marketing Centre can be organised at block level.
12. Effort should be made to improve the agricultural tools. □

Compensation of Fluctuations in the Load of Power Units

POWER systems have to bear uneven distribution of power throughout the 24 hour operation cycle. At certain period the load is the greatest while the consumption of power goes down considerably at night. Such variations in the mode of operation of the power units lead to a considerably excessive fuel consumption, shorten the life of the equipment due to greater wear and tear and hamper the efficiency of operation. Such load fluctuations can be compensated by construction of special power stations.

The principle of operation of a pumped storage power station is based on the cyclic displacement of the same amount of water from one water storage to another, placed at different levels. When water comes down from the top storage to the bottom one the station operates as an ordinary hydro-power station. While delivering water from the bottom storage to the top one the station operates as a pumping unit. Thus at night, when the station operates as a pump it consumes the surplus energy of a thermal power plant. As a result the operation becomes even and it is no longer necessary to stop them. The hydro pumped storage stations better the mode of operation of the thermal and nuclear plants. These can be utilised as standby stations in the power generating systems for maintaining proper supply of power at the time of maximum and minimum loads. Thermal and nuclear power plants require the construction of water reservoirs. These also can be used for building hydro-power stations. Another additional facility of the hydro pumped storage stations is that these are, unlike the hydro-power stations, are fitted with combined pump-turbine units. The electrical machines of the stations can be used both as generators and motors.

The Soviet Union has begun the construction of such a complex on the river Yuzhny Bug in South Ukraine. It will incorporate the South Ukrainian nuclear plant with a capacity of 4 million Kw., the Tashlyk hydropower station with a capacity of 1.8 million Kw and the Konstantinovskaya hydro accumulating power station with a capacity of 0.38 million Kw. The complex will also have three water reservoirs, the Tashlyk, the Konstantinovskaya and the Alexandrovskaya.

The heated water from the condensers of the nuclear plant will cool down in the Tashlyk water reservoir, from where it will be channelled to the Alexandrovskaya water reservoir through the turbines of the Tashlyk hydro-power station during the four peak hours in the evening. At the same time the hydro accumulation power, run in the turbine mode of production, will discharge water from the Konstantinovskaya water reservoir to the already mentioned Alexandrovskaya water reservoir.

When the load is minimum, water will be pumped back from the Alexandrovskaya reservoir to the Konstantinovskaya one by the combined pump-turbine units. From there the lower pumping station will deliver water to the water intake of the nuclear plant, and then the upper pumping station of the plant will feed it to the cooling system of the nuclear plant.

The location of all projects on one site will cost 15 per cent less in capital investment compared to the separate construction of three power stations and an irrigation system. This method will also solve the problem of water supply for the nuclear plant and of cooling the waste water. ☐

Adult Education for American Workers

"ADULT LEARNING and the American Worker", is part of a 48-month project on Worker, Education and Training policies being conducted by the National Institute for Work & Learning with funds from the U. S. Dept. of Education. Panel for Adult Learning and American Workers included representatives of labour, business, education and government.

The Panel has reported that adults need various forms of continuing education for many reasons. As the work place undergoes change—because of technological development or import displacement, workers need new and different skills. Changes in the economy, such as inflation and social changes such as the influx of women into the work force are also creating major needs for adult education and training, the panel's report notes. The panel stresses that programmes of adult education, or lifelong learning, must go beyond broad goals to include the specific information, skills and experiences related to work life and the functioning of the economy. Adults who had the least education when they were young tend to take least advantage of adult education and steps should be taken to insure that these individuals are not barred from continuing education in the future. Participation in such programmes remains low, however, and the panel says cooperation among unions, employers and educators can help feed information on such programmes to workers, get barriers to participation removed and see to it that the right kinds of courses are offered by the schools.

This kind of cooperation is essential both to give labour and industry a better understanding of the capabilities of learning institutions and to give educators a realistic appraisal of the kind of education workers want and the skill training employers need in real work settings, the report concludes. ☐

(AFL—CIO News)

Capacity Utilization in Cement Industry

K. S. Ram*

CEMENT INDUSTRY is one of the important basic industries of a developing country. The economic vitality of a developing country is always identified by the per capita consumption of such important products as cement, steel and power. It is beieved in certain quarters that the per capita consumption of cement in India is as low as 32 kg whereas the per capita consumption is 670 kg in Japan, 544 kg. in Germany, 341 kg in U.S.A. 540 kg. in Singapore and so on, But India's per capita consumption has been steadily raising for over a decade. It rose from 23.4 kg. in 1968 to 25.1 kg in 1973 and 30.8 kg in 1978 before touching 32 kg mark in 1980.

The annual installed capacity of cement industry at the end of the First Five Year Plan ending 1956 was 5.02 million tonnes as against 3.28 million tonnes in 1950. The First Five Year Plan registered an excellent production record of 91.6 per cent of installed capacity with an annual production of 4.60 million tonnes. This represented annual growth of capacity by 8.9 per cent and production 9.3 per cent. During Second Five Year Plan ending 1961 the installed capacity rose to 9.30 million tonnes and the annual production to 7.83 million tonnes. The Third Five year Plan ending 1966 created 12.00 million tonnes annual capacity with the annual production of 10.58 million tonnes. There was five fold growth of cement industry in India between 1950 to 1969 with the installed capacity rising to about 15 million tonnes per year. With the introduction of dry process units twenty six new plants came up during the Third and Fourth Five Year Plans. The cement machinery manufacturers utilised the opportunity of manufacturing the complete cement plants in their licensed units indigenously and installed them. India started manufacturing several types of cement like Pozzolana Portland cement, Portland Slag cement, Low Heat cement, Rapid Hardening Cement, Hydrophobic Cement, Superfine Cement, Super Sulphated Cement, Oil Well Cement and White Cement beside OPC.

The Cement Corporation of India, a Public Sector Enterprises, came into being during the Third Five Year Plan. It made steady progress in not only establishing factories, but also in encouraging machinery of the licensed Indian cement machinery manufacturing companies to bring up their new units.

Spectacular Achievements of CCI

The recent spectacular achievements of Cement Corporation in contributing total existing cement manufacturing capacity of 2.18 million tonnes, an almost three-fold increase in the installed capacity of the plants of C.C.I., which came up in Third, Fourth and Fifth Five Year Plans, speaks of the substantial contribution to the growth of the industry under the enlightened leadership of its Chairman. The Corporation, has thus come up in a big way to raise the per capita consumption of cement, besides making a huge profit of Rs. 10 million for the first time. The country is making steady progress. The industry is making a headway by establishing the cement plants of 0.4 million tonnes and 1 million tonnes. The five Five Year Plans have substantially brought up the image and both Public and Private Hectors are taking up the challenge of the Sixth Five Year Plan in a determined way. The Government, having the determination to wipe out the impediments coming in the way of production and coststructure, set up Study Teams, Tariff Commissions Industrial Infrastructure after taking the decision on the Monitoring System emphasised the need to maintain close liaison between the Central Ministries of Industry, Energy, Railways and Commerce. The constitution of such a force was aimed at increasing the capacity utilisation of cement plants atleast by 25 per cent so that import of cement could be drastically reduced.

The economic and scientific research foundation undertook the study of cement industry. The study revealed that the existing capacity of the cement industry should be doubled in the next 10 years by adding nearly three million tonnes per year on average through the large-sized plants to meet the growing domestic demand. Though the cement industry has grown from 22 units with a capacity of 3.2 million tonnes in 1951 to 57 units with a capacity of 24 million tonnes in 1980, the impressive installed capacity figure is still an inadequate quantity for the growing demand. Further, the industry had come to a standstill with only 2.6 per cent annual capacity growth in the Fifth Plan Period and the shortage is steadily increasing year after year. The study pointed out that only large sized plants would bring in economies of scale and keep the cost of production lower.

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*Engineer, New Delhi

Critical Constraints

It was reported some time ago that fifty per cent of the cement industry units in the country would be in the red by the end of this year, and 75 per cent by the end of next year, if coal and power supply constraints are not removed. There is no doubt that the critical constraints on the efficient operation of cement plants are coal and power. The demand of the cement industry is growing year after year touching almost 5 million tonnes. The consumption of coal in the Fourth Five Year Plan had increased to 5.10 million tonnes from 3.62 million tonnes, thus varying between 4 per cent to 5 per cent of the total coal consumption in the country. It almost amounts to one fourth of the consumption of steel industry. Although, coal production is planned to increase substantially in the next few years conservation measures within the industry can contribute to some extent. The average coal consumption per tonne of clinker, including transportation handling losses amount to 300 kg. This is very high compared to many other countries. Assuming heat requirement of 1250 Kcl/Kg. of clinker for dry process and 1500 Kcl/Kg for the wet process and assuming average heat value to be 5200 Kcl/Kg., it should be 270 kg per tonne of cement. Even by allowing 3 per cent wastage in transit and handling losses, the consumption could be reduced by 7 per cent. This requires modernisation of the coal units in the cement industry by modest investments.

Basing the requirement of average power consumption of 125 kwh per tonne of cement, the cement industry which was consuming 4.8 per cent reached 5.6 per cent of the total industrial electricity consumption. The capacity utilisation in the industry has suffered largely varying from 2 per cent to 5.2 per cent in the Fifth Five Year Plan period, thus resulting in added agony of cement production. It is hoped that the Sixth Five Year Plan projections demand an increase of more than 75 per cent utilities capacity which should be in a position to help the industry.

It is imperative need of the hour to have proper needful exchange of information among the various experienced organisations and research bodies to study many aspects of the research and development of the industry. Many organisations of repute have started thinking on the similar lines to conserve the precious fuel and advise the industry to economise the fuel and power. ☐

STEP BY STEP

New Excavator at NLC's Mines

THE largest hydraulic excavator to go into operation in India has been commissioned into services at the mines of the Neyveli Lignite Corporation. NLC's acquisition of this machine Poclain Model 600 CK supplied by Larsen & Toubro Ltd., is in tune with the increasing acceptance of large size hydraulic excavators in heavy mining and large earth-moving projects all over the world. This machine has been manufactured by M/s. Poclain S.A. of France. Smaller versions of this machine are, however, being produced by M/s. Larsen & Tubro Ltd. in Bangalore in collaboration with this French firm.

Record Production

BHATINDA Unit of National Fertilizers Ltd. (A Government of India Undertaking) has achieved its target of 2,12,900 tonnes of Urea for the financial year 1980-81 on March 30.

During the year an all time record production of 1724 tonnes of Urea was achieved on February 1 and 1000 tonnes of Amonia was achieved on February 11 against daily rated capacity of 1580 tonnes and 900 tonnes respectively. Thus both plants have produced at 110 per cent of their installed capacity and have set new record of daily production.

Award for Industrial Design

THE Good Industrial Design Award at the prestigious Hanover Fair, West Germany, was bagged by L&T's Motor Control Centre (MCC) in 1980. The items which won the award were the MMOO Contro contactor and two push button pendants. In 1979 the award went to FB-250 fuse switch. This is the third year in succession for L&T to win the award.

The prize-winning MCC is the latest to be developed by L&T in the range of medium voltage motor control centres which the company introduced more than two decades ago.

Another Feather in BHEL's Cap

NATIONAL SAFETY COUNCIL, Chicago, of U.S.A. has given the award of honour for the outstanding safety performance to the Triruchy Unit of the State owned Bharat Heavy Electricals Limited. The award of honour is the highest recognition presented by the National Safety Council for outstanding occupational safety performance and places BHEL as a safety model for its industry.

The award to Tiruchi Unit of BHEL is in recognition of the operation of 5,270,800 employees-hours without occupational injury or illness involving days away from work or death, from August 26, 1980 to October 24, 1980. The Tiruchi Unit has so far received an award of merit and three awards of honour for having maintained a record without an occupational injury or illness or death.

TRENDS

Bhimgoda Barrage Project

THE Planning Commission has approved the Bhimgoda Barrage Project of Uttar Pradesh. The project is estimated to cost Rs. 22.45 crores.

The project envisages a 550 metres long barrage under sluices on either side of the barrage, two head regulators to feed the existing upper Ganga Canal and the proposed Eastern Ganga, river training works, and modernisation and improvement to the structures of existing head works. ☐

Mass Loan to SC

OVER 48 lakh rupees were distributed by Chief Minister, Mr. Bhajan Lal among persons belonging to Schedule Castes in a mass loaning function organised by the State Bank of Patiala in collaboration with the Haryana Harijan Kalyan Nigam at Adampur Madi in Hissar district on 15th March. Earlier in a similar function held at Barara in Ambala district loans to the tune of Rs. 15 lakh were distributed among more than 500 SC/ST families. Loans will be given in other districts too. These loans are being advanced for enabling the beneficiaries to start their independent ventures in various fields. Haryana Harijan Kalyan Nigam has already distributed loans to the tune of Rs. 50 lakh among 25,000 SC families during the last year. In addition, the Nigam has also sanctioned Rs. 70 lakhs for 3,500 SC families recently for self-employment. Rs. 125 lakhs would be loaned to SC families for the construction of the houses and 750 persons from Balmiki community would be advanced loans for buying rickshaws.

Prevention Of Polio

POLIO Vaccination Programme for the year 1981-82, envisages to cover 24 lakhs children with three doses of polio vaccine. Programme will be gradually expanded to cover 85 per cent of the infants of the country by 1985.

Polio is an acute infectious disease, primarily of children between three months and five years of age. It is difficult to diagnose a child with polio till he is paralysed. Paralysis of legs is more common than that of arms. Vaccination is the only effective way to prevant polio. Three doses of the oral polio vaccine starting from the 3rd month should be given to the child at intervals of 4—6 weeks. A booster dose at the age of 18—24 months should also be given. To protect against polio following precautions are suggested.

Wash your hands with soap and water—especially after visiting the toilet and before eating or handling food. Protect your food from flies and dust. Wash thoroughly fruits and vegetables that are eaten raw. Boil water and milk well before use. Do not allow the child to play in water which may be contaminated with sewage and garbage. Protect children from chill and fatigue, especially during epidemics. ☐

Streamlining Statistical Operations

THE FIRST-EVER MEETING of State Ministers of Statistics, held recently in New Delhi has decided on a broad strategy to strengthen and streamline statistical operations in the country to meet the statistical requirements of planning and policy. The Union Minister of Planning and Labour and Deputy Chairman, Planning Commission, Shri Narayan Datt Tiwari presided over the meeting. It was agreed at the meeting that in each State the directorate of Economics and Statistics will function as the "nodal" agency to coordinate the statistical activities and suggest methods to improve the coverage and quality of data in different sectors. For overseeing and guiding statistical activities in the States, there will be a high-powered committee under the chairmanship of the State Minister in charge of statistics.

The conference proposed the establishment of a National Advisory Board on Statistics (NABS) with representatives from States, Centre and Research Institutions for providing technical guidance for policy issues concerning development of statistics and for ensuring effective coordination of statistical activities. It agreed that some reorientation of the existing statistical system is called for in areas of operations, research and quality control and to make effective use of computers in designing the various statistical operations. The special requirements of the North-Eastern Region, were recognised and it was agreed to take appropriate steps to create adequate facilities for data processing and training of statistical personnel.

Earlier inaugurating the Conference Shri Tiwari said that there is an organic relationship between statistics and planning. "Major strides which our statistical system has made since the inception of planning in the country," he said, "Is but a natural corollary to the existence of this intimate link and yet when we review our statitstical system, we find that it has not always kept pace with the ever growing requirements in many areas. The system is deficient in many ways and much leeway has, therefore, to be made to augment its capacity to the desired level. It is partly due to the new demands on the system with changes in the emphasis of the successive plans, for example, the current stress on reduction of social and economic disparities, removal of poverty, eradication of unemployment, etc."

TN Government to form Chit Fund Corporation

THE Government of Tamil Nadu proposes to form a Chit Fund Corporation in two or three months time. Announcing this in the State Assembly recently, the Minister for Rural Industries Shri K. A. Krishnaswami said that the Corporation to be formed with a capital of Rs. 10 lakhs would have its headquarters in Madras and 15 branches initially. Gradually the number of branches would go up. The Corporation is expected to earn Rs. 30 lakhs a year. ☐

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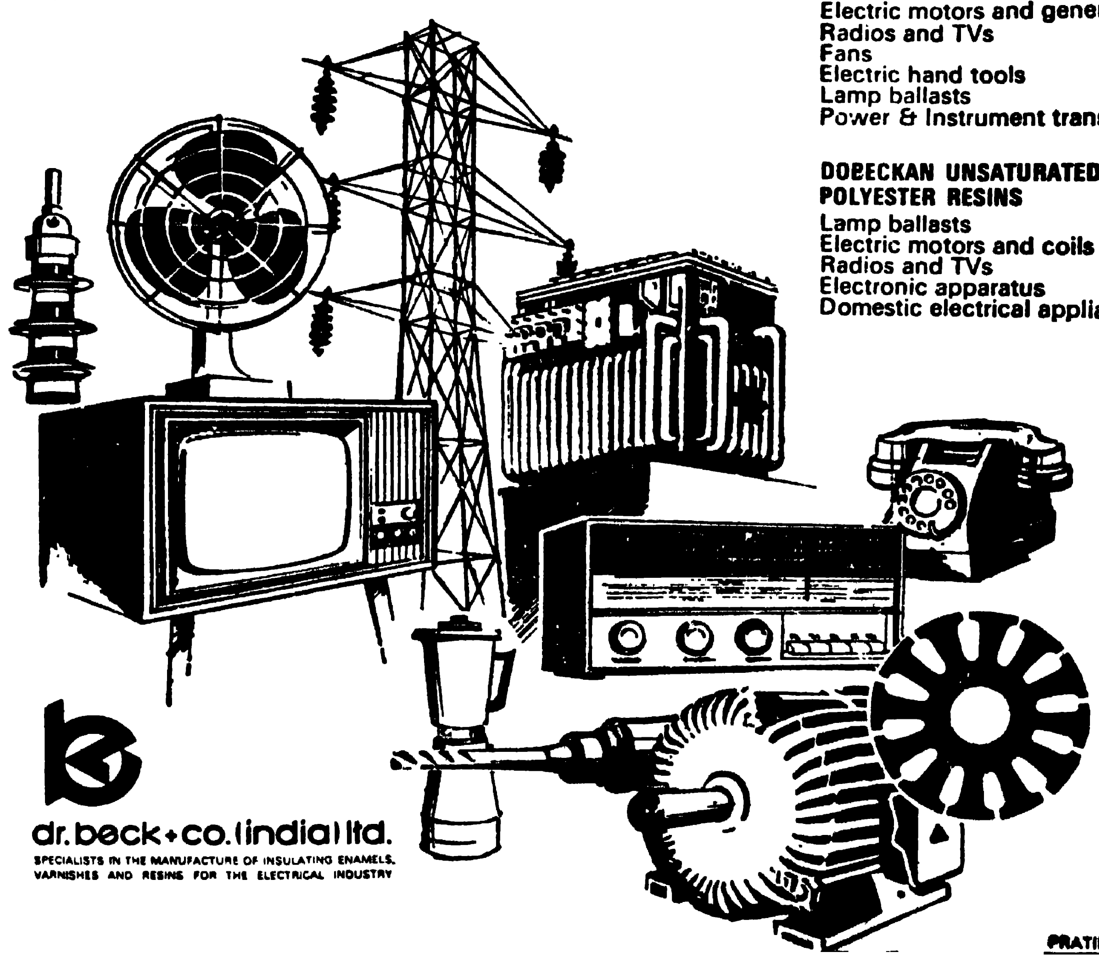

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BOOKS

A Welcome Series On Netaji

Netaji Collected Works Volume—1; Editor—Sisir K. Bose; Published by Netaji Research Bureau, Calcutta; pages 280; Price Rs. 30.

IN the country's struggle for independence, Netaji Subhash Chandra Bose's name shines out as a brilliant luminary in the star-studded political firmament of India. He wanted 'blood' from his countrymen and promised them 'freedom', the magic word for which thousands had given their lives. In fact his was a culmination of a series of happenings that occurred since the first shot was sounded for the emancipation of the motherland. 'Subhash Chandra Bose has to be understood in the context of the long march of the Indian people to independence from 1857 to 1947. His birth in 1897 marked the meeting point of that crusade', pinpoints an introductory remark in the book.

Netaji Research Bureau would be fulfilling a long public demand in bringing out—the first volume under review would be followed by 9 others—collected works of Subhash Bose. The present one contains the first 25 years of Bose's life ending with his resignation from the Indian Civil Service in 1921. It contains the unfinished autobiography—An Indian Pilgrim—along with many letters written to family members and friends. Of particular interest is an essay, which forms chapter 'X', on 'My Faith—Philosophical'. Unfortunately he could not finish the two others which were to find place in his autobiography,—'My faith—Political' and 'My Faith—Economic'.

It is better to start with chapter 'X' containing the essay as not many know the philosophical background, written in his own words, of this 'Karma Yogin'. In his search for 'Reality' and not 'Maya', which dominates the Hindu philosophy, he comes to the conclusion : 'Reality therefore is Spirit, the essence of which is Love, gradually unfolding itself in an eternal play of conflicting forces and their solutions.' He further elucidates: 'Love, is the essence of the universe and is the essential principle in human life. . .for me this theory represents the maximum truth and is the nearest approach to Absolute Truth'.

He accepted theories propounded by Hegel, particularly that of 'thesis, anti-thesis and synthesis'. To quote him. 'This reality is not static but dynamic' it is ever changing. Has this change any direction? Yes, it has; it is moving towards a better state of existence'. As Swami Vivekananda said: 'Man proceeds not from error to truth but from truth to higher truth'.

In fact Swami Vivekananda had a tremendous influence on Bose, as his Headmaster Beni Madhav Babu had in his tender age at school. Even after the Headmaster retired, Bose started correspondence with him and he in turn gave him good advice. In one letter he writes: "Surrender yourself completely to nature and let nature speak to you through her Protean mask." Such contemplation gave him peace of mind and strength of will.

At the adolescent stage, Swami Vivekananda's published works rescued Subhash from the acute mental dilemma he was in. To quote him: "I had hardly turned over a few pages when I realised that here was something which I had been longing for...... My headmaster had roused my aesthetic and moral sense and gave a new impetus to my life but he had not given me an ideal to which I could give my whole being, that Vivekananda gave me". Through Swamiji's message—Atmano Mokshanam Jagaddhitaya,—for your own salvation and for the service of the humanity—Subhash got the meaning of his life and strived all through to follow this teaching. That was when he was only 15. 'Then there followed a revolution within and everything was turned upside down',

Another Karma Yogin, Shri Arabindo Ghosh had an influence on Subhash who read avidly the monthly journal, Arya which Arabindo edited. When Subhash came to Calcutta from Cuttack in 1913, Arabindo was already a 'legendary figure.' Subhash said : "Vivekananda had no doubt spoken of the need of the Jnana (knowledge), Bhakti (devotion and love), and Karma (selfless action) in developing an allround character; but there was something original and unique in Arabindo's conception of synthesis of yoga".

The book contains 10 letters written between 1912 and 1921 and provide supporting material to Netaji's idealistic thinking. His letter to the Secretary of State for India tendering resignation from the Indian Civil Service is also included in the volume.

Lives of great men teach us that we can make our lives sublime. It is a laudable job that the Netaji Research Bureau has undertaken—the task of publishing all available materials of Netaji. It is equally gratifying to note that the Government of India is financially supporting this venture. The Publications Division of the Government of India will publish the Hindi edition of the works in collaboration with the Bureau. Its Bengali editions are also being published by a private publishing firm. Copies of these editions will find place in many homes in India. There is, needless to say, no dearth of interest in the life of Netaji Subhash Bose.

The getup of the book is good, printing clear though there are a few errors in proof reading. Some of the photographs selected are rare. Cover design could have been more attractive.

S. N. Bhattacharya

- **The British
puff cigars**
- **The Russians
wear chappals**
- **The Yugoslavs
sip tea**
- **The Germans
drink coffee**
- **The Americans
sport 'kurtas'**
- **The Iranians
have a sweet
tooth for sugar**
- **The Iraqis
relish 'biryani'**
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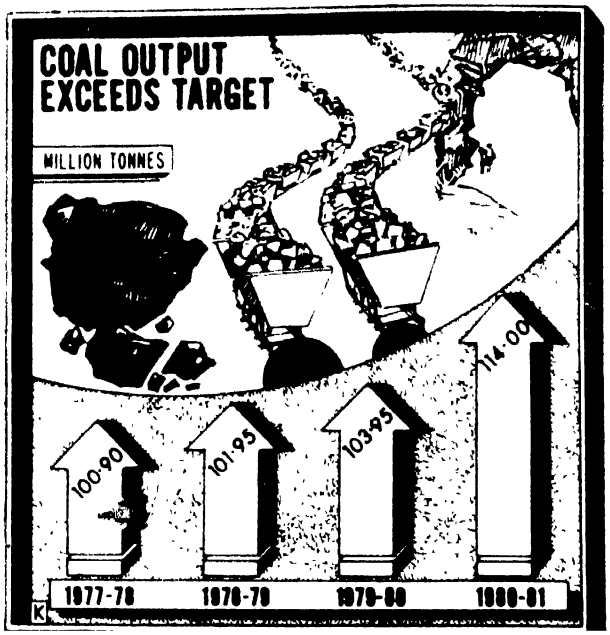

Coal Output Exceeds Target

COAL production in the country, for the first time has been pushed up substantially. During 1980-81, the monthly production rise was of the order of about one million tonnes, as against an yearly output increase of one or two million tonnes seen during the three preceding years.

The production during the year exceeded 114 million tonnes, which is about 11 million tonnes more than 1979-80. This represents 9.6 per cent increase in production, which is in excess of the year's target. A target of 121.5 million tonnes output has been set for the current financial year (1981-82).

The adequate supply of coal is of critical importance to the operation in key areas such as thermal power generation, steel plants and the railways.

Windmill

(Continued from Cover II)

Rs. 9,100 at very small scale of production which will vary depending upon cost of steel, scale of production, overhead cost, subsidy to the project and subsidy to the farmers.

Windmill can contribute considerably to meet the challenge of energy crisis. Let us presume if 100,000 windmills of Ghazipur type are installed. In a year, windmill can effectively operate for a period of five months. Total saving of electricity works out to be 40 crore units in a year, costing about Rs. 18 crores. The saving of diesel from 100,000 windmills in a year will be ten crore litres, that is about Rs. 26.3 crores. This gives an indication of huge saving of fuel and wealth to the nation. In the same manner, the increase in agricultural production, and production of fish can also be calculated. The cost in terms of raw materials for one lakh windmills works out to Rs. 51.38 crores for 25 years, this being life of a windmill. And for one year it is only Rs. 2.06 crores which is too low input. Further, if 25 per cent overhead cost is added in material cost total cost of production per annum will be around Rs. 2.58 crores.

For the farmers the total cost of a windmill in Ghazipur was Rs. 7,800 in 1980. They were given 33 per cent subsidy on the actual cost of windmill by the project. Thus a farmer took a loan of Rs. 6,100 from the State Bank of India, Ghazipur for a period of 7 years. His annual instalment of repayment was worked out at Rs. 1,481. But on account of no cost of energy as wind is free, his saving of diesel cost in a year comes to Rs. 500 per month or Rs. 2,500 in 5 months, the period for which windmill can irrigate in a year, while his yearly instalment payment is only Rs. 1,481. This shows the economic benefits of windmill to a farmer. Irrigation becomes possible without recurring cost of fuel.

ORP Windmill Workshop

A bright prospect of windmill in India can only be assured if Central and State governments provide needed help and assistance to organisations as well as to farmers in the same manner as it is being done in case of bio-gas plants. ☐

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Increasing Production through better Agricultural Practices

R. V. Khandekar

Better care, better harvest of jowar

FARMING today has become a skilled job. Success of an agricultural programme primarily depends on transfer of advanced agricultural practices and technology to the farmers and their adoption by them. It is through the adoption of these practices that farmers especially the small and marginal ones with limited resources can not only earn their livelihood but also improve their standard of living. They have got to be trained and their level of knowledge and skill raised reasonably to match with that prevailing in advanced countries. This is precisely what the National Bureau of Soil Survey and Land Use Planning, with its Headquarters at Nagpur is doing by selecting pieces of land of half an acre of marginal farmers of villages around Nagpur and Wardha and providing basic information on soils and suggesting appropriate use of land thereby increasing their productivity.

Twenty five farmers from Wardha District, (five each from Sewagram, Kharangna (Gode), Sukli, Koh Kolhapur and Bhidi) were adopted under the Lab-to-Land Programme in kharif 1979. During rabi 1980, five farmers of Monda village near Nagpur were also adopted for demonstrating the benefit of transfer of improved technology. Wheat crop was taken in rabi 1979-80 followed by cotton H-4 in kharif 1980. Eight more farmers were taken for cotton and jowar demonstrations. Simultaneously research programmes were initiated to ascertain the response to graded doses of fertilizers on cotton, jowar and wheat crops in kharif 1980 and rabi 1980-81.

On the basis of soil maps and detailed soil survey report, the suitability of soils was assessed for different crops and critical inputs viz. seeds of improved varieties, fertilizers and plant protection measures were provided to the farmers on their fields at the right time. Through the adoption of improved practices in selected demonstration holdings in Monda village the average yield of wheat rose from 10.75 to 25.5 q/ha; jowar from 16.5 to 28.5 q/ha and cotton from 6 to 18.59 q/ha.

Regular visits to the farmers' fields at Monda by the technical staff of the Bureau stimulated the farmers and instilled confidence in them. As a result they readily volunteered to participate, learn and adopt the technique explained to them and follow the technical advice given to them from time to time scrupulously. The beneficiaries appreciated the services rendered by the Bureau through the constant and continuous on-the-spot guidance given by its technical staff.

The Bureau is at present engaged in preparing a revised soil Map of India on 1 : 1 million scale. It is proposed to bring out a separate publication on the Benchmark soils of India at the time of the 12th International Soil Science Congress scheduled to be held in New Delhi in February 1982. The basic information gathered from surveys is being utilised for preparing rational land use plans. ☐

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*Information Officer, P.I.B. Nagpur.

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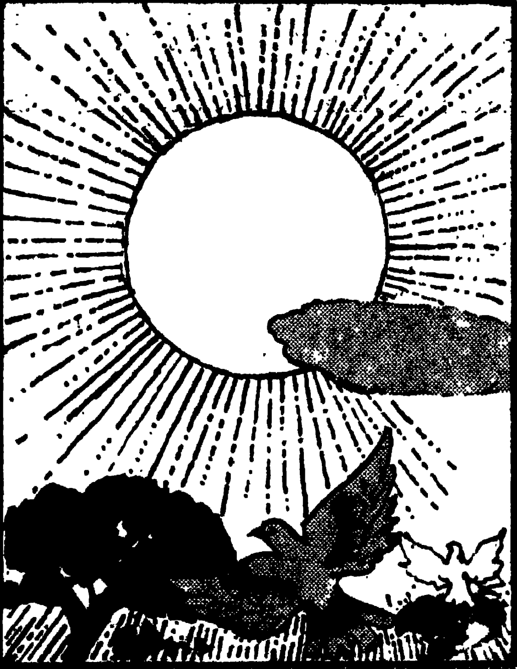

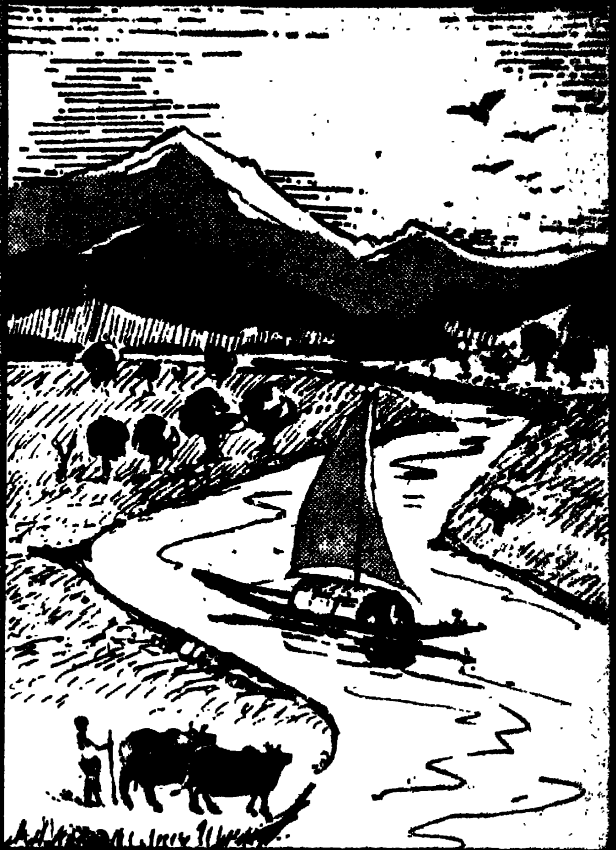

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Bongaingaon Thermal Power Station

R. N. Bezbaruah*

BONGAINGAON Thermal Power Station, popularly known as BTPS, was dedicated to the nation on February 26 by the Assam Minister for Power, Shri K. C. Gogoi. Though stated to be a giant among power stations in the North Eastern region, this unit with capacity to generate only 60 MW is nothing to be pround of in view of the big gap between demand and supply of energy in the region. It would only help ease the power shortage in Assam and the neighbouring States and Union Territories. With the commissioning of this 60 MW project, Assam State Electricity Board can increase its capacity to 201.5 MW.

A View of the Bongaingaon Thermal Power Station

Bongaingaon Thermal Power Station was conceived with an installed capacity of 300 MW (5 x 60 MW) in 1975. The Station was therefore, designed for common facilities and infrastructres for installing five units of 60 MW each in different stages. While the first unit was completed and commissioned in February; the second unit is expected to be ready for commissioning by September, 1981.

The BTPS envisages the utilisation of coal as a source of energy. The Rs. 140 crore project will be implemented in a phased manner and completed by 1984. The Assam State Electricity Board has already made arrangement with Coal India Ltd., to get supply of coal from the Eastern Raniganj Coal-fields to the project site by rail transport. Another coal-based Power Project, the second of its type, is proposed to be set up in Margherita in Dibrugarh district of Upper Assam to be fed by coal available from the nearby Mergherita coal-fields and the scheme is now being examined by the Planning Commission.

The North Eastern States are endowed with rich resources of energy. The estimated hydro-electric power potential of 15 rivers flowing through the region is of the order of 12000 MW. A number of hydro-electric projects are now under consideration. □

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*Our Correspondent & Senior Editor Yojana (Assamese)

Cable Car with Wood Fuel

AN AIRSHIP CAR, which runs on steam power with wood as fuel, will soon become a reality. This off-road transport system will have a hot air balloon which will fly three metres above the ground with 25 to 40 people in the fibre-glass cable car underneath it. It is being designed and developed by Sri A.M.M. Murugappa Chettiar Research Centre, Tharamani, Madras. The head of the photosynthesis and energy division at the Research Centre said that another revolutionary process successfully implemented by the centre is a unidirectional windmill, called "Anilar 1". Made of tree trunks with gunny bags as sails, the windmill, erected on causuarina poles in the coastal areas, will start operating when the wind speed reaches 25 kmph. At this speed, nearly 2,000 litres of water is pumped in an hour and the windmill functions for at least 12 hours a day. The cost of installing such a windmill is around Rs. 1,500.

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Yojana seeks to carry the message of the Plan but is not restricted to expressing the official point of view.

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Editorial

Wheat Procurement

THE SLOW RATE of procurement of wheat has caused much concern all around. It was reported in the press that the procurement in Punjab and Haryana was less than half their quotas till the third week of May when the harvesting season was nearing its end. The poor arrivals of stocks at the markets have been all the more worrying. In spite of the new crop the market price has been higher than the procurement price.

Due to the widespread drought of 1979 in the north, production in the next year was much less than expected, and only 5.8 million tonnes of wheat could be procured. Meanwhile the withdrawals from the buffer stock were at a higher rate, and the stock, as in April this year, was less by two million tonnes than the required minimum of 12 million tonnes. This year's severe drought in the south has further aggravated the position.

There are many reasons for the tardy procurement this summer. Firstly, because of the shortfall in production, private traders have sought to buy up all available stock for hoarding and profiteering. Secondly, some politicians have been advising the farmers to withhold stocks in order to force the government to increase the procurement price to sell it later at a higher price to private traders. The State governments have also been hesitant to offend the farmers' lobby. Further, the relaxation of the regulatory mechanism by the government after the previous bumper harvests, has led to large-scale movement of wheat from the producing States to other areas.

The Prime Minister herself has held discussions with Haryana and Punjab government leaders on May 20 on the procurement problem. Immediately after, the Punjab Government imposed restrictions on the stocks which could be held by the traders. Some other States have already imposed levies on private traders.

The government has to take firm action to foil the attempts of vested interests to create artificial scarcity and increase the price of wheat. Any such contingency will cause hardship to the poorer sections and also adversely affect planned development. Levies should be imposed both on traders and rich farmers by all States so as to procure the targeted 9.5 million tonnes. Inter-State movement of wheat should be controlled. The Government should also make it clear that it would not hesitate to take over the wholesale grain trade if necessary. (215.81) □

Science and Environment

Indira Gandhi

For us who live in underdeveloped countries and are grappling with the age-old problems of poverty, the conservation of the environment cannot be at the cost of development. War at one end and poverty at the other are the worst of all polluters of the human condition. We need balanced development and peace to rescue civilisation from this predicament. The ecology movement must proceed hand in hand with the movement for peace and the fight against economic backwardness.

At the time of our Independence and in the fifties, we all looked forward to a brave and bright new world. We had unbounded faith in science and the miracles it would work to eradicate the ills of society. Now we see the ancient wisdom that what really counts is the human spirit, the human approach, in sciences as in everything else. Let us not blame science which has unveiled for us some of the mysteries of our own minds and bodies no less than the miracles of outer space. Let us blame ourselves as governments and citizens for seizing these wondrous opportunities not to help fellow man but to destroy or maim him, not to make up whatever deficiency there might be in our earth but to deplete its treasures. For what ? For every temporary gain, or physical comfort, or goods of which we so soon tire, as does a child who has a surfeit of toys.

The rich out of greed and the poor out of need have been reckless in plundering earth's assets. There is now deep anxiety about the rapid diminishing of what have become essentials to our way of living indeed even to life.

In affluent nations, agriculture is based on high energy inputs which we simply cannot afford. Agriculture is a harvest of sunshine, a resource which we have in plenty. Whereas industry makes allowance for a certain depreciation of assets this is not feasible in agriculture. We have to use land and water so as to enhance their productivity. The indiscriminate use of fertilisers, pesticides and other agriculural inputs cause long-term damage to humans and animals, to crops and to the earth itself.

Industry, so necessary for employment and for providing indeed articles, can also be a nuisance. While vast numbers in the developing countries are in desperate need of basic necessities, the affluent countries are using up far more than their share of the world's resources, spending much money, material and talent in churning out luxuries thus inculcating wasteful habits although it is now known that resources are limited. Goods and weapons soon become obsolete. They clutter the landscape. Either we cannot or haven't yet made the effort to recycle them. Factories pollute the air and the water, spreading dirt and disease no less than that caused by poverty.

Development with Conservation

Development with conservation means that growth priorities do not sacrifice the needs of tomorrow for immediate compulsions. It requires closer association of scientists and technologists in the planning process. Planners must call for ecological impact statements to indiate the probable long-term effects of any technological innovation. We have just constituted a Department of Environment at the Centre and have suggested to the State Governments to do likewise. We hope that every major development ministry will have advisers to take care of environmental considerations.

Our recent legislation ensures that proposals to convert forestry areas to non-forestry uses are scrutinised by a Central team of experts. Public awakening about the ecological dimension of development has resulted in an indepth look at the Silent Valley and other projects. We except the State Governments to share our concern and do their utmost not only to preserve existing forests but to extend and enrich them and promote socially useful schemes like farm forestry and social forestry.

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* From the address of the Prime Minister to the 68th annual session of the Indian Science Congress, at Varanasi, January 3, 1981

Environment and River Valley Development Projects

S. Maudgal*

ENVIRONMENTAL considerations should form a part and parcel of river valley development projects. This would result in short or long-term social and economic benefits.

Creation of large water bodies is known to have resulted in the introduction of water-borne diseases through such vectors as snails. Malaria, filaria and schistosomiasis epidemics have known to occur because of disregarding the introduction of parasites and vectors through the creation of large water bodies. The loss to the nation, in terms of man-hours lost and the consequent loss to the GNP and additional cost on medi-care etc., can be crippling especially in situations where the health delivery system is already in a rather precarious condition. The introduction of a development project, in such a situation can become a harbinger of disaster rather than ushering in an era of prosperity.

Destruction of areas of plant genetic resources that have been created by many centuries of evolution, for short term gain, would indeed be an unmitigated disaster.

The prosperity of mankind depends upon our capability to keep the foodgrains free from destruction by insects and pests. As more and more high-yielding varieties of Food grains and economic plants are released for general cultivation, the problem of heavy losses through diseases and pests which thrive under conditions of intensive agriculture, will become increasingly important and the plant breeders would have to turn to the genetic resources found in the primitive type varieties and their wild relatives. Preservation of the areas rich in plant genetic resources as biosphere reserves is thus imperative. Destruction of these resources that have been created by many centuries of evolution, for short-term gain, would indeed be an unmitigated disaster. Therefore, the need for a careful study before establishment of traditional development projects in such areas can hardly be over-emphasised.

Fish in most of the developing countries is a rich source of protein. The creation of a barrier across the migration path of the fish can considerably undermine the survival of the affected fish. Simple fish ladders, or quite elaborate mechanised lifts, can be provided to permit fish to reach their breeding spots. Adequate attention, however, needs to be paid to proper designs of the engineering structure so as to effectively help the fish to cross the hurdle. Otherwise, overlooking of a simple factor can be disastrous to the regional economy.

Inadequate attention to the provision of drainage works in irrigation projects is known to have caused more damage than bringing commensurate benefits. Reclamation of water-logged and saline soils is an expensive and time-consuming process which the growing economies can ill-afford. Even though the initial investments may seem forbidding, integrated planning of irrigation, drainage and soil conservation aspects is a must.

The development projects are accompanied by extensive road building activity, creation of new settlements, destruction of forest areas and introduction of new industries. All these factors cause irreparable damage to the soil cover resulting in increased sedimentation, flash floods, and loss of land fertility. Land slides that accompany the road construction activity, specially in the hilly tracts is a common, and unfortunately a generally accepted sight. The excessive blasting operations losen the whole slope which becomes susceptible to serious land and mud slides.

The factors listed here are by no means uncontrollable. Indeed, the detailed study of the problems involved can help to arrive at a judicious solution where the soil conservation and afforestation measures can be intermeshed with engineering solutions to provide long-term stability. Even a cursory analysis would reveal that the environmental planning is absolutely essential to achieve long-term sustainable economic development. Short-term gains, at the cost of natural environment, may be tempting but can end up only in disaster.

Ecological Considerations

Since, the natural environment can no more be considered a free and inexhaustible resource, all development activity impinging upon the natural environment needs to be carefully selected and controlled. Development of water resources is a major challenge to be accomplished in an environmentally sound manner for achieving economic development. This calls for incorporation of ecological parameters in the planning and execution stages of these projects.

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During the planning and feasibility assessment stages of River Valley Projects, the following aspects need to be seriously considered. The first one is site selection. Some of the major environmental components that need to be kept in view during the selection include short and long-term impact on population/human settlements in the inundated and watershed areas impact on flora and fauna (wildlife) in the vicinity, impact on wildlife (including birds) breeding area/feeding area/migratory route, impact on national parks and sanctuaries both existing and potential, impact on sites and monuments of historical, cultural and religious significance, impact on forests, agriculture, fishery and tourism etc.

Being a relatively new discipline, requisite data for impact assessment may not be readily available and may have to be generated through such field-surveys as pre-impoundment census of flora and fauna, particularly the rare and endangered species, in submergence areas ; census of animal population and available grazing areas; Land-use pattern in the area with details of extent and type of forest in catchment and submergence areas; pre-impoundment survey of fish habitat and available nutrients' levels; round water levels, water quality and existing water use pattern ; mineral resources in the impoundment; living conditions of affected tribals etc.

The impoundment creates altered surface water patterms that may have far-reaching impact on underground acquifers and their recharge. Major aspects to be considered include; siltation or sedimentation expected in the reservoir and adoption of watershed management practices to retard siltation process; potential ground water recharge, or other ground water changes, due to impoundment; expected water quality (salinity) changes over time and their effect in riverine eco-system both in impoundment as well as downstream; land use patterns and practices in the vicinity of waterspread that would affect acquatic vegetation growth patterns; potential impact on micro-climate due to creation of a large water body; potential seismic impact of reservoir loading etc.

Careful evaluation should be undertaken of the impact of factors like resource trade-off, such as, loss of optional land uses due to impoundment, mineral deposit loss, forest reserve diminution, monuments inundated, recreational facilites lost, dislocation of existing settlements etc; compatibility of dams creation and operation with present or planned development of the region and effect on resident and migrating fish and other acquatic life and assessment of new fishing potential.

Since, relocation may strain/disrupt the social fabric of the affected population, efforts should be directed towards betterment of their quality of life and preserving, to the extent possible, the special characteristics of their life-style by adequate provision of population relocation requirements in inundated as well as watershed areas; identification of educational and vocational training programmes to be imparted to the affected population so that they can cope better with the new life style; resettlement area planning for housing and other amenities of community life (water supply, sanitation, schools, health services etc.) to be provided at resettlement sites.

Serious consideration must be given to new health problems or vector patterns that may arise due to changes in water velocities, temperature, quality or other physical change factors caused by water impoundment and adequate public health planning to create facilities for migrant construction workers and immigrant influx. Possibility of disease aggravation or new public health problems introduced due to changes in population density and distribution also need to be looked into. Measures to control contamination of surface and ground water due to pesticides and fertilizers need also to be drawn up in advance.

Rapid economic development on a sustained basis can be achieved only by safeguarding the air, water, land, flora and fauna.

The cost of proposed remedial and mitigative measures, if any, to protect the environment must be included in the project costs. Mitigative measures may include :

- — Compensatory afforestation;
- — restoration of land in construction areas by filling, grading etc to prevent further erosion;
- — control of aquatic weeds in submerged areas to provide improved habitat for aquatic-life;
- — measures to salvage/rehabilitate any rare or endangered species of flora and fauna found in the affected area;
- — measures to salvage and relocate monuments from inundated zones;
- — enforcement of anti-poaching laws;
- — measures to prevent forest fires, over-grazing etc.;
- — establishment of fuel depots to meet fuel requirements of labour force for preventing indiscriminate felling of trees;
- — public health measures to control spread of water and soil-borne diseases.
- — field surveys and studies to create the environmental data-base;
- — technical and administrative measures to effectively monitor the observance of suggested safeguards and mitigative measures etc.

A judicious sequencing of construction operations and appropriate location of labour camp and project colony etc. can go a long way to reduce environmental damage. The following factors are worth considering. All road construction and blasting operations, specially upstream of the reservoir, should be completed before reservoir filling is commenced so as to reduce excessive sedimentation load. Exxcessive blasting resorted to by contractors should be controlled, specially in hilly terrain, so as to check the incidence of land-slides in the area.

(Contd. on page 26)

Import-Export Policies of 1981-82 —An Appraisal

Dr. V. R. Panchamukhi*

IN making an appraisal of a policy frame—current or past—three types of issues need to be looked into. Firstly, one should analyse the nature of basic changes in the policy frame that are introduced in relation to the policy structure of the past periods. Secondly, one should ask the question as to whether there are any rational criteria on the basis of which these changes are introduced. Thirdly, are the policy changes, as also the total policy frame, consistent with the objectives of these policies and also with the overall aspirations and goals of the planned economic development? In other words, what are the implications of the policies for the various aspects of the domestic economy, such as prices, resource allocation, production, trade and income distribution, and consequently, are these economic implications consistent with the overall objectives of planning? This three-pronged appraisal of policy frame could be categorised as, (i) Identification of structural changes, (ii) Determinants of structural changes and (iii) Problems of consistency and coordination. The purpose of this paper is to examine the import-export policy of 1981-82, on the basis of these three types of issues of appraisal.

Structure of Policy

At the outset, it is useful to make an observation that the conception of the structure of import and export policy frame as envisioned and practised by the Ministry of Commerce is a very partial one and it lacks comprehensive coverage of the various aspects of the import and export activities. Ideally, import policy frame should cover the following : (a) import licensing system in regard to goods, services and technology, (b) import tariff structure, (c) institutional aspects of the import activity, and (d) exchange rate policy. Similarly export policy frame should cover, (a) export control, (b) export promotion measures of fiscal nature, (c) export promotion services and related institutional measures and (d) exchange rate policies and related issues, such as exchange risk coverage, etc. In a wider conception, one should include in the import-export policy frame also such of the domestic policies which affect directly or indirectly the import and export activities. In any case, in the conception of the Commerce Ministry in so far as the policy statement is concerned, this frame does not include policies towards import of technology, tariff system, exchange rate policies some of the instituional aspects and export promotion schemes. Paradoxically export policy statement is essentially concerned with export control rather than export promotion measures. Compartmentalisation of the total policy frame according to the different Ministries of the Government has led to undesirable disintegration of the import-export policy frame, causing thereby, problems of consistency and coordination.

The new Import-Export Policy is pragmatic and innovatives in several respects. This is a cogent and imaginative import-export policy book introduced at a time when the country is through a most difficult period in the balance of payments account.

In the field of planning and policy making, it is necessary to make a distinction between total variables and parameters on the one hand and those at the margin on the other. For example, instead of considering total output of a sector in a period it is useful to consider separately and explicitly, the level of output (X) with the last year's plant and machinery and capacity utilisation, and the incremental output (DX) with the additions or changes in the latter. It is appropriate not only to consider the total tax rate (T) but also the past level of tax rate (T') and the change (DT) that is sought to be made in it. Similarly distinctions between the average and the margin should be made in respect of entities such as technology, input coefficient, import licensing system, tariff rate etc. It is these marginal variables, which generate new types of impulses and sequences of economic effects on the various other aspects of the economy.

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Inspite of this importance of the margin, very little care is taken to incorporate this distinction in the exercises on planning and policy making. Import Export Policy frame is no exception to this weakness

Over-all Policy Frame

The broad frame of import policy of 1981-82, remains the same as that initiated for the first time in 1978-79 period as a result of the rationalisation process recommended in the Alexander Committee Report. As against the "Nil" policy frame of the pre-1978 periods, the new frame categorises the goods into OGL, Restricted and Banned categories and lists in the policy statement only the latter two categories and keeps the OGL as an open-ended list. The spirit of this rationalisation process was to gradually emancipate the economy from the grips of excessive import controls and "expose" the domestic industry to greater and greater international competition so as to induce greater efficiency and emphasise the importance of the developmental role of imports and thereby induct import management rather than import restrictions as the basic philosophy of the import policy frame. However, the policy frame of 1981-82, seems to imply a reversal of this rationalisation process in so far as there is a large scale removal of items from the OGL list and the banned list runs into 38-40 pages, of the import policy book. It is contended that removal of 165 items from the OGL list is done with due "regard to indigenous production and capabilities" and placing of 63 items of OGL is effected so as to "enable requirements without difficulty". These contentions seem to give to the domestic availability criterion a place of prime importance without regard to the aspects of efficiency or costs of domestic production in determining as to which items should be placed on OGL and which on restricted or banned lists. A suitable criterion in this regard should combine both the domestic production and price-advantage aspects. Suppose we classify the various items into a two-way table with share of domestic production in total supply as one variable and the price advantage of domestic output in relation to imports as another variable :

	Price Advantage of domestic output in relation to imports	
	High	Low
Share of domestic production in total supply	I	II
	III	IV

Items falling in category I are normal products without any need for policy interventions. Further, the items in quadrant-IV deserve to be carefully nourished for domestic production on selective basis with supporting measures on technology, product development, financial support etc. Items falling in quadrant-II deserve to be gradually exposed to international competition because they have grown under excessive protection in the past. Gradual liberalisation of import regime is necessary for these items. Items falling in the third quadrant require special policies which facilitate domestic production—measures of technological advice information, preparation of project reports, assistance in product development, etc. A careful application of this size-price criterion* alone could make the modifications in the structure of policies rational and sensible. There is no evidence whether the CCI&E's office had done such elaborate, though, at times quite demanding exercises, before taking decisions on the OGL or banned lists.

Three points are pertinent here. Firstly, analysis of the import behaviour of the items put on OGL, shows that there is no consistent spurt in the import levels of these items after they are put on the OGL and, in fact, uncertainties in regard to continuation of OGL status for an item may induce spurious spurts in the imports. In any case, the initial spurt, if any, would eventually taper off as a result of supply-demand interactions. The second point is that it is a misnomer to attribute any slugglishness in domestic production or capacity utilisation of an item to the fact that it is put on the OGL, because there are a number of 'on-OGL" factors affecting domestic production activity. Hence a detailed analysis is called for. Thirdly, if domestic industry has to learn the "art" of surviving under competition, it should be given a fairly good "opportunity" to do so and further no tears need to be shed if inefficient lines of production die off when exposed to competition after a fairly long period of growth under "excessive" protection.

Based on these points, one could recommend strict stability for three years for the categorisation of items in the different categories.

Bias Towards Small Scale Sectors

The new policy has adopted a number of innovative measures to promote production and trade from the small scale sector. Provision of repeat licence up to Rs. one lakh, special facilities for consortia of small scale units and Small Industries Corporations of State Governments are welcome changes. However, distinction between Trading Houses and Export Houses and special advantages to the former, reduction in the value of additional licences to the Export Houses exporting products of small scale units do not seem to be based on very convincing arguments. However, one important point that is missing in this year's and also earlier policy pronouncements is that services of import management, advice on product adaption, and information do not receive adequate special recognition—advantages to the Trading Houses or consortia, should have been linked with the provision of services to the small scale sector rather than the simple criterion of volume of the exports from the small scale sector.

Growth Factor in Automatic Licences

The ten per cent growth factor in the automatic licences has been confined to the export performance. This change introduced in the last year's policy has been continued. Even though this may imply a built-in advantage to the export activity, the purpose of the growth factor built into the 1973-79 policies was meant to provide ease in input supplies for the advantage of all the domestic producers. It is worthwhile considering the retention of a growth factor for all automatic licences and a special growth factor for export-oriented units.

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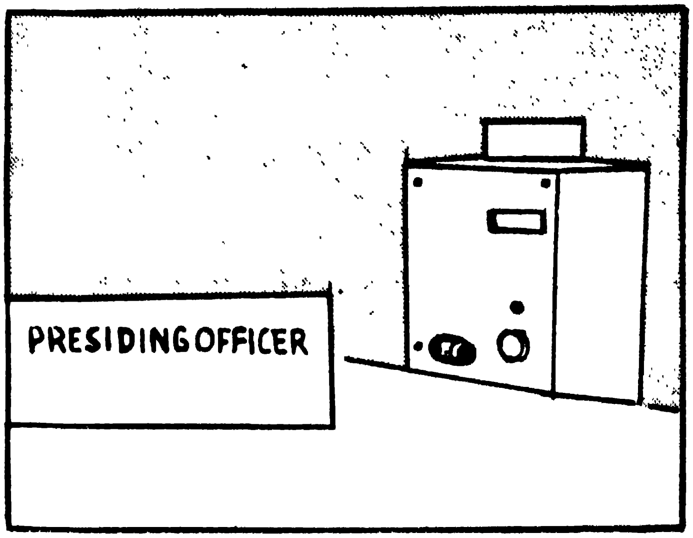
* Further discussion of this size-price criterion may be found in V.R.Panchamukhi- "Trade policies in India : A quantitative Analysis". Appendix-2, Concept Publishing Co.1977.

(Contd. on page 23)

Can we have Electronic Voting Machine ?

I. K. K. Menon*



The Presiding Officer regulates voting with a small controlling electronic switching machine.

THE electronic voting machine (EVM), which is suggested to be introduced in India, will usher in a new era in her history of elections. This voting equipment, developed by the Electronic Corporation of India, is a simple device of the size of a tape-recorder. It hardly weighs two kilograms The machine is run by two simple cells which are easily available at Rs. 5. On a pair of cells the machine can be operated for 3 or 4 days continuously The machine has plastic buttons against which the names of the contesting candidates and their symbols are pasted. Bahart Electronics Ltd., Bagalore has also developed a similar machine for trial.

Like the present ballot box the EVM will be kept within a screened compartment. The Presiding Officer will regulate the voting with a small controlling electronics switching machine connected to the voting machine by a six metre long wire.

After verifying his identity, a voter is allowed to go behind the screen and press a button to cast his vote in favour of the candidate of his choice. Then the machine records his vote which is indicated by the glow of a small red bulb. Simultaneously the glowing red light of the controlling machine, will go off. By this method the Presiding Officer and the agents of the candidates can satisfy themselves that the voter has exercised his vote. The EVM does not function again till the presiding officer releases a lever and this prevents the voter pressing the button more than one time. Also to satisfy the agents of the candidates, before them are displayed, the controlling machine and an electronic sign board indicating the number of votes polled, each time a vote is recorded. At the close of poll, a button on the side of the voting machine and the button against the candidate will have to be pressed simultaneously when the number of votes secured by the candidate will be flashed on the window of the controlling machine, as in an electronic wrist watch.

The button to be used by the voter is so sensitive that a slight touch is sufficient to record the vote. The machine is provided with a system to satisfy the candidate's agents before the polling commences, that the EVM is set for casting the votes and that there is no defect or foul play. At the end of the poll the voting machine can either be sealed and taken to the counting centre, or the counting can be done at the polling booth itself wihin a few minutes and the results recorded in the result sheet.

Disadvantages

But the main impediment in the way of introducing this system is the enormous cost involved. The cost of the machine, as at present, works out to about Rs. 6000 to Rs. 6500. In the event of mass scale production, the Electronic Corporation of India claims that the cost can be brought down to Rs. 1500 to Rs. 2,000 per machine. For the existing 4,50,000 polling boths all over the country 2,25,000 voting machines will be required. The total cost will work out to about Rs. 45 crores at the rate of Rs. 2,000 each. Further in far flung areas like Lahaul Spiti and so on, if the machine goes out of order, the polling will have to be suspended. However such a contingency is not likely to arise in the normal course, since the body of the machine is strong and can withstand any ordinary rough handling. The machine can be preserved for at least 15 years with proper care so that it may be used in a number of elections to the Parliament, Assemblies, Panchayats, Muncipalities and other local bodies.

Advantages

Its advantages, however, far outnumber the disadvantages. If the machine is intrduced, there is no need for ballot papers at elections. There will also be a reduction in polling personnel. As against three or four polling personnel besides a Presiding Officer, two persons, one for checking the identity of a voter and another, a helper if need be, to put the indelible ink on finger are sufficient. If the photograph Identity Card is introduced, indelible ink marking can also be done away with, and consequently manpower can be further reduced. By such re-arrangements, an officer of higher status can be posted as a polling officer, who will instil more confidence in the voters.

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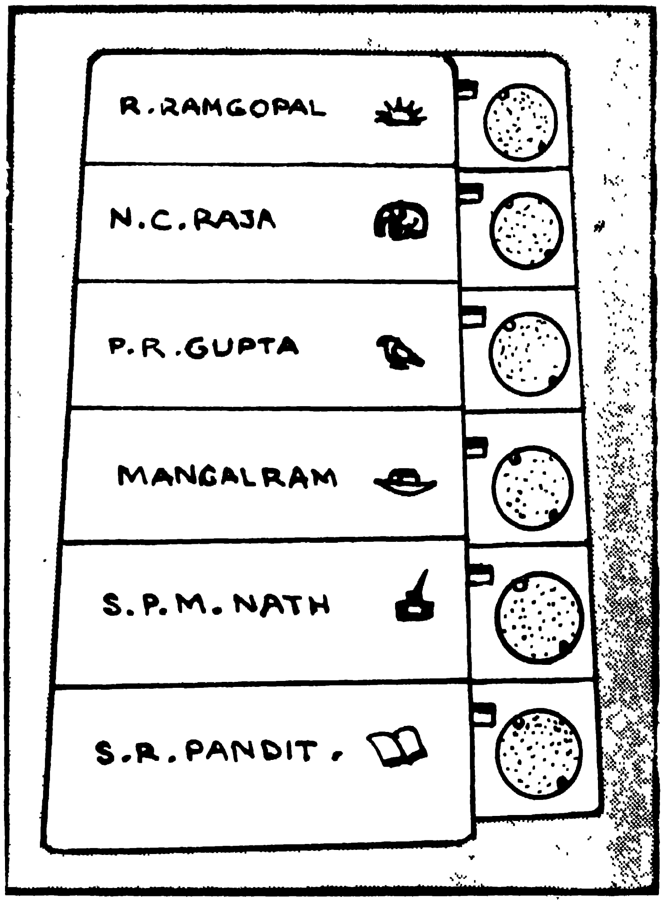
*Former Secretary to Election Commission



The EVM has plastic buttons against which the names and symbols of the contesting candidates are pasted.

The use of the machine can accelerate the pace of polling and it may be possible to reduce the number of hours of polling; each polling party can take the poll in two polling booths on the same day as against one at present. The poll in one booth may be taken in the morning by assigning 4 hours, say from 7 a.m. to 11 a.m. and in another from 2 p.m. to 6 p.m. After poll in one polling station, the electronic voting machine, which is handy, can easily be transporated to the second polling booth. The vehicle carrying the polling party from one polling booth to another may itself serve as a mobile polling booth and cover the different areas now assigned to a single polling booth. Incidentally, this may not only reduce the distance to be covered by the voter but also prevent anti-social elements from preventing weaker sections of society reaching the polling station to exercise their franchine, as the poll will be taken almost at their door-step.

By introducing the Electronic Ballot Box the use of the ordinary ballot box can be completely done away with. At present, 3 ballot boxes are normally supplied to a polling booth, but if the number of contestants is large, resulting in increase in the size of the ballot paper, about 5 ballot boxes are necessary. Similarly procurement of large quantity of special type of paper printing binding and stitching of ballot papers bundles can be dispensed with. The distribution of ballot papers and opening of various distribution centres for the purpose, checking of each ballot paper thoroughly at the time of distribution, the innumerable varieties of stationery and forms used at a polling station, the large number of papers and keeping accounts can be avoided completely or reduced drastically. At present, after the poll the sealed ballot boxes are taken to the storage centre and preserved there under police guard until the counting is taken up. In the changed circumstances this may not be necessary.

There will be no need for the existing elaborate arrangements for counting, that is provision of a number of counting tables, shamianas, a huge counting staff, supervisory staff and police personnel, and the payment of TA/DA to them. The number of counting agents to be appointed by the candidate and the security staff can also be reduced.

With the use of electronics voting equipment, there will be no scope for rejection of votes. The overall time period for election can also be reduced considerably. At present there is an interim period of 20 days between the withdrawal of candidature and taking of poll. This period may be reduced to just 5 or 6 days, because ballot papers will no longer be required, and the time spent on their printing can be saved. It is the printing and distribution of ballot papers that delays the holding of poll after the last date for the withdrawal of candidature. Reduction of the electioneering period will also mean a saving for the the candidate. It will not be necessary for him to appoint a separate set of counting agents and there will be considerable saving on this count as also on transport. ☐

FAMILY WELFARE

NATION'S WELFARE

Education and Employment

L. K. Jha*

FOR centuries in Indian society the manual worker has been looked down upon. The man who reads and writes, who has studied much, has been given all the respect. Therefore, it is the ambition of all those who are engaged in manual work of one kind or another to educate their sons so that they no longer follow the kind of vocations in which their forefathers have been engaged. Tailors, carpenters, blacksmiths and farm workers would like their sons to get a desk job. It is with this motive that they send their children to school. Those who entertain no such dreams, or feel they cannot afford them because their children must work and help them in their family vocations, do not send their children to schools at all. In the schools the educational system only strengthens a preference for white-collared jobs, preferably government jobs. Depending on how well they fare in their studies, some aim to get into one of the administrative services, others hope for clerical jobs or, as a last resort, for class four or group 'D' employment.

Let the hours of schooling be such that children who have to help their parents in the farm or in any other way can continue to do so.

Among those who are able to see far enough ahead to assess the employment possibilities of education in different fields, there have been shifts in preferences for the kind of course which they try to take up. At one time, science subjects were more popular than arts subjects. Later technical courses in engineering and medical colleges began to be specially sought after. More recently business management seems to be the craze. Even engineers want to take it up.

In terms of actual earning, products of medical, technical and management institutions seem to fare rather well, largely because only the meritorious can succeed in getting admission and the number of available seats is very limited. Only a fraction of those who receive what is known as general education, get the kind of employment they are looking for; those who do often find that the course which they took for their degree has not much relevance or use in the kind of job which they are doing. A man may do well in a competitive examination by offering subjects which would have no utility in the work he would do.

In sum, we have a situation in which a good proportion of the population denies itself even primary education, because the children cannot be spared from family work to take time for schooling. Children who do go to school all too often begin to get a little alienated from their familes and surroundings-except for those whose parents come from the educated and better off families—as they begin to feel superior and look down on manual work. Later frustations begin to manifest themselves. Only a few can gete admission to the technical institutions they want to enter. The rest take up a general course but most of them fail to get the kind of jobs they were aspiring for. They either remain unemployed or eventually reconcile themselves to doing some thing for which their eduction has little relevance. What is worse, even among those who do get reasonably good jobs, the chances are that what they studied in the university is of little practical use to them in the careers which they pursue.

Without dilating at length on the many weaknesses of the educational system as an agency for providing the kind of manpower we need, let me within the time at my disposal put forward for discussion and debate some suggestions to make the educational system more responsive both to the problems of individual students and of the community as a whole.

I suggest that primary schools in rural areas should not follow the time schedule and programme of holidays which come down from the British days. Let the hours of schooling be such that children who have to help their parents in the farm or in any other way can continue to do so. Similarly instead of a summer vacation or Christmas vacation, the timing of holidays should be such as to leave the young free to help in agricultural operations at sowing and harvesting time.

Secondly, in all schools, as far as possible, the task of keeping the class-rooms clean and tidy and of otherwise looking after the physical needs of the student community should be entrusted to the students themselves. The practice of engaging non-teaching staff should be reduced to the minimum. Payments to students for work done would also be a worthwhile reinforcement of the work ethic.

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*Chairman, Economic Administration Reforms Commission. Excerpts from his inaugural address at the Conference of Manpower Data Producers and Users—New Delhi, April 26.

Thirdly, in the school syllabus there should be a practical paper which covers training in a craft which can be locally practised. A certain amount of flexibility between area and area will have to be there but in general in rural areas something connected with agricultural operations would be suitable, while in urban areas even repairs to some mechanical equipment such as a bicycle or replacing a blown electric fuse could be a part of the craft curriculum. In short, schooling should bring the benefits of literacy and learning to the traditions of productive work which are there in every village and, in fact, in every family, rather than create barriers between the young and their environment.

College Education

Let me now turn to college education. Some of the brightest and the best students after leaving school try to secure entry into a variety of institutions imparting specialised training in some profession or other. A good proportion of really deserving candidates cannot get entry into the fields of specialised study which they want to undertake. I belive we should expand the facilities for such courses, especially as employment outlets for them extend beyond the shores of India.

Indeed this is true of technical training at all levels. Vast number of Indians are going abroad to work, and if they are well trained and have the necessary skills, they can enrich themselves and the country. Even from a purely economic point of view, the expansion of technical training facilities would pay us good dividends. If financial resources prove to be a major bottleneck, I see no reason why some of these institutions connot be run on a basis which entails no subsidisation. Further, we could also get some finance from countries which are interested either in getting trained personnel from India or in sending their own personel for training in India.

Not everyone could or should go in for technical training. A high proportion of those who want to study more after leaving school seek entry into degree colleges, most of them not because they have any genuine interest in higher studies but because they want to become eligible for jobs, mostly governmental jobs, for which a degree is regarded as a minimum qualification. I suggest we should do some rethinking about minimum qualifications.

I feel we should do away with the insistence on a degree for jobs the entry to which is through competitive examination. Since success on a competitive basis in the entry examination is what ultimately matters, why should we insist on a degree as a pre-condition for appearing in the test ? It is not as if the course of study undertaken at the degree stage is of much use in the jobs for which candidates are being recruited. In the administrative services, knowledge of mathematics or Sanskrit is of not much use, though it is relatively easy to secure high marks in these subjects. Those who have studied them tend to fare better.

Would it not be desirable, I wonder, to start recruiting for the IAS after the plus-two stage ? In so far as competitive examination is meant to evaluate the general ability of the candidate the purpose could be served equally well by holding the test at a younger age. Thereafter the successful candidates could be sent to an administrative college where the subjects which are taught are those which would help in the discharge of duties which they would be called upon to perform.

The vocational paper should have links with the subject which the candidate offers for his degree. This would pave the way for graduates to take advantage of self-employment schemes which we are promoting.

The objective I have in view is to create an atmosphere in which only those take up university courses who are interested in the subjects which they are studying and are not merely trying to make themselves technically eligible for certain jobs by sporting a degree. The attempt, in other words, should be to reduce the overcrowding and the frustration in the university campus which makes vice-chancellorship one of the most hazadous jobs in the country. But even in the college stage, I suggest a vocational paper should be introduced as a compulsory part of the syllabus. As regards subjects, I feel dairy development, poultry farming, bee keeping, soil levelling, repairs to equipments like pumpsets and automobiles, typing and shorthand and the like could be considered. Preferably the vocational paper should have links with the subject which the candidate offers for his degree. This would pave the way for graduates to take advantage of self-employment schemes which we are promoting.

In contrast to the approach for higher jobs, I would suggest that for what are known as Group 'D' services, we might raise the level of minimum educational qualifications. This would, on the one hand, reinforce the links between education and manual work and on the other result in a much better standard of service in various institutions. To support my point, I would refer to the fact that while our surgeons perform the most difficult operations with a skill and proficiency which is comparable to the best in the world, all too often because of the carelessness and ignorance of the staff responsible for maintaining sanitary conditions in hospitals, the mortality rate in India tends to be higher.

We have to create an atmosphere in which of their own volition more and more students and their parents begin to opt for courses of a specialised vocational character rather than go in for the kind of general education which in British days became so popular. To fulfil this objective, we cannot just reply on setting up new institutions of a technical kind. No doubt more such institutions are needed, but it would be more economical and advantages to transform the content of education, to make it more relevant to our needs. □

Planning and Development in Saudi Arabia

Dr. Mohammad Iqbal*

SAUDI ARABIA has emerged, during the last dècade, as one of the large oil producing countries in the world. Most of her inhabitants are Arabs and Muslims of the Wahhabite sect. Half of the total population consists of Bedouin tribesmen One fourth of the people are urban dwellers and remaining 25 per cent are settled cultivators. The system of Government in Saudia Arabia is monarchy, with strong theocratic overtones. The Islamic revivalist movement, known as Wahhabism was headed by Muhammad Ibn Abdul Wahhab in the eighteenth century. In this oil rich nation, Government is highly centralised and all power vests with the royal house and in particular with the person of the king.

Founded by the late King Abdul Aziz in 1932, the Kingdom had been reeling under acute poverty till late 50s. The oil boom has now transformed the nation into one of the rich countries of West Asia. Her population now stands at 8.96 million with a density of four persons per square kilometer against the world average of 30. Hardly one fifth of them are literate. Most of her people are nomadic or semi-nomadic. Agriculture and animal husbandry are the major occupations of the people.

Saudi Arabia had been living in isolation until the end of the Second World War. The discovery and development of vast oil resources had put an end to her isolation and transformed the nation into one of the wealthy countries. Saudi Arabia now stands third in oil production next to the US and the USSR and has nearly one quarter of the world's proven oil reserves. Oil constitutes over 80 per cent of the GDP and 95 per cent of the Government revenues. In 1979-80 the country produced more than nine million barrels of oil a day. According to the latest assessment Saudi Arabia's oil will last well upto the next century. The Arabian American Oil Company (ARAMCO) at Rass Tanuara, the largest oil refinery in the country, produces about 96 per cent of the country's total output. Besides, there are two other refineries, Getty Oil Company of the U.S. operating onshore in Meena Sand and the Arabian Oil Company of Japan operating offshore at Alkhafji. Moreover the Government has set up the General Petroleum Organization (PETROMIN) to manage the new oil and mineral based industries and coordinate national interests in oil production. The main oilfield in the Kingdom is at Abqaiq with the operating centre at Dhahran.

Economy

The nation's economy in 1979-80 achieved a growth rate of 7.6 per cent in real terms. Over the last few years it has been growing at an annual rate of 6.5 per cent. The real gross domestic product in 1978-79 increased at 9 per cent compared to 5.9 per cent in the preceding year. The spectacular increase in the overall GDP was mainly due to the improved performance of oil sector which realised a growth rate of 5.5 per cent against a decline of 0.5 per cent in 1977-78. The non-oil private sector in the same period, witnessed an impressive growth rate of 12.4 per cent, though somewhat lower than that in the preceding year, whereas that of the public sector was 13.5 per cent. A structural change in the economy has set in during the last 5 to 6 years. The share of the oil sector in total real GDP declined from 60 per cent in 1974-75 to 50 per cent in 1978-79, while that of the non-oil private sector rose considerably from one-fourth to one-third of total GDP. Capital formation, in gross domestic expenditure rose from 13.2 per cent in 1975-76 to 33.3 per cent in 1978-79. The unprecedented economic growth expanded the infrastructure, removed bottlenecks, improved public utilities, reduced the gulf between the growth of aggregate supply and demand and subdued domestic inflation.

Planning

At the root of rapid transformation of the economy lies well conceived and effectively implemented economic planning. The establishment of an Economic Development Committee heralded the era of development. In 1959 the Committee was expanded and re-

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named as the Committed for Economic Development. In 1961 it was replaced by the Supreme Planning Board and later, by the Central Planning Organization (CPO). The CPO is charged with the duties of preparing periodic economic reports, formulating economic development plans, estimating the overall resources needed to implement the plan, assisting the various ministries and government agencies in their economic planning, establishment of planning units in each ministry and public agencies and providing the technical advice to the King. The president of the CPO reports directly to the King. The CPO in cooperation with the advisers of the Public Administration Project of the Ford Foundation, presented the first comprehensive document entitled "Planning for Growth". But as this document did not give precise guidelines for implementation, the Plan met with failure. In 1968, Shri Hisham Nazar an official of the Ministry of Petroleum and Minerals, was appointed as the President of the CPO. Shri Nazar transformed the CPO into an aggressive planning body.

Saudi Arabia now stands third in oil production next to the US and the USSR and has nearly one quarter of the world's proven oil reserves.

A five year plan, from 1970-71 to 1974-75 was chalked out in 1970. The plan envisaged rejuvenation of the entire economy, including the policies, programmes, and projects, to increase the rate of growth of GDP, develop human resources, and to achieve overall development. This plan also intended to diversify sources of national income and reduce dependence on oil by increasing the share of other productive sectors in GDP. Table I shows the average growth rates from 1965-66 to 1968-69 and the projections for the plan period 1970-71 to 1974-75.

Table 1

Average annual growth rates and plan projects

Sector	1965-66 to 1968-69	Plan Projections
Agriculture	1.7	4.6
Crude Oil and Natural Gas .	8.2	9.1
Mining and Quarrying . . .	6.4	23.3
Petroleum Refining . . .	11.7	9.1
Manufacturing	12.1	14.0
Construction	4.2	10.4
Electricity, Gas, Water and Sanitation	12.1	13.2
Transportation, Communications and Storage	11.1	12.9
Wholesale and retail trade . .	10.3	12.8
Banking and Insurance . . .	10.7	11.0
Ownership of dwellings . . .	7.0	8.6
Public Administration and Defence .	5.4	5.0
Education	7.2	19.0
Health	2.4	9.5
Other Services . . .	8.1	10.0
GDP	7.9	9.8

Table II gives the expenditure incurred for the development of various sectors in the First Plan.

Table—II

Development Expenditure during the first Plan

(Million Riyals)

Sector	1970-71	1971-72	1972-73	1973-74	1974-75
Communication .	523.6	1333.7	1244.1	2051.7	4212.1
Civil Aviation .	79.9	127.3	223.9	466.8	1150.8
Agriculture and Water Resources	230.1	456.0	572.5	855.0	249.7
Petroleum and Mineral Resources	39.6	82.3	86.7	136.3	164.3
Commerce and Industry . .	9.2	28.9	29.9	46.0	114.4
Labour and Social Affairs . .	8.2	24.1	26.4	36.4	165.7
Education and Educational Institutions . .	24.9	125.9	255.1	565.5	1265.6
Health . .	10.9	29.9	45.4	84.2	435.1
Interior (Municipalities) . .	190.1	438.8	640.5	1575.3	3683.8
Hajj and Awqaf .	9.4	28.2	45.7	57.5	103.8
Information .	28.2	48.8	82.2	158.5	205.3
Others . .	1441.9	2312.5	3463.2	8229.8	14646.4
Total . .	2596.0	5035.7	6717.6	14263.0	26397.0

The first plan placed emphasis on agricultural development. The agricultural programme mainly consisted of four major projects : a 30,000 acre irrigation project at Al-Hasa in the Eastern Province, a major land reclamation and irrigation project to settle 10,000 Bedouins (The Faysal Model Settlement), a dam at Wadi Jizan (which on completion was to irrigate 20,000 acres), and another dam at Al-Abha in the Asir region.

In 1973 a major desalination project was started and by the end of 1974 the Saudi Government was operating five sea-water desalination plants. Besides these, the first economic development plan also undertook projects like the Petroleum Lubricating Oil Company in Jedda with an annual production of 75,000 barrels, a sulphuric acid plant in Dammam, expansion of the Jedda Oil refinery to 45,000 barrels per day capacity, construction of a 15,000 barrels per day refinery in Riyadh area, expansion of the Jeddha Steel Rolling Mill to 1,00,000 tons per year capacity and a long-term programme for the exploitation of mineral resources.

Second Plan

The first economic development Plan had hardly come to an end in 1975 when Saudi Arabia's new king, Khalid Ibn Abd al-Aziz al-Saud announced, the most ambitious development plan in the history of Saudi Arabia involving an expenditure of $ 100 billion during 1975-80 on all types of industrial and agricultural projects. Later the outlay was enhanced to $ 141.1 billion as shown in Table III. The Plan brought about a change in the composition of the economy. The contribution of the non-oil private sector to the GDP rose from 26.8 per cent at the beginning of the Plan period to 34.3 per cent in 1978-79. The plan reduced the acute port congestion between mid 1977 and early 1979, improved labour shortages, contained the rate of inflation by 10 per cent and lowered the construction cost.

Table III

Outlay of Second National Plan (1975—1980)

($ billion)

Sector	Outlay	Per cent
Economic Resource Development .	26.1	18.5
Human Resource Development .	22.7	16.1
Social Development . . .	9.4	6.7
Physical Infrastructure Development	32.0	22.7
Administration	10.8	7.7
Defence	22.1	15.7
External Assistance Emergency Funds, Food Subsidies and reserve	18.0	12.7
Total	141.1	100.0

The main objectives of the plan are, to achieve a high rate of economic growth, to exploit the mineral resources of Saudia Arabia, to achieve independence from oil as a source of national income, to develop the infrastructure and human resources. The effective implementation of the plan resulted in developing infrastructure and industries at a rapid rate. But the economy landed in high rate of inflation, port congestion and less efficient development process. However, Saudia Arabian Monetary Authority in its Annual Report of 1977, wrote "......1976-77 ended with major bottlenecks removed........port congestion eliminated............. . inflation has begun to decelerate."

To have a diversified economy, their industrial development plan aimed at expanding and developing the existing manufacturing and industrial enterprises, such as cement production, the Jeddah Steel Mill and ancillary investments in desalination units. The Plan envisaged to develop the seven 'industrial sites' near major urban centres, which would accommodate light industry to meet the needs of the Saudi Market. The country thought of developing the industrial areas at Yonbo in the west, and Jubail near Dammam in the east, where a hydrocarbons industry was planned for processing gases associated with oil. It involved investment of $ 30 billion for infrastructural facilities. They envisaged an aluminium plant, steel mill, fertiliser plant and additional refineries and hydrocarbon plants.

Third Plan

The third development Plan, 1980-85, set the expenditure ceiling originally at 831.6 billion riyals ($ 249.7 billion), allowing for an inflation rate of 7 per cent a year. However it was pointed out that the expenditure would be 900 billion riyals ($ 270 billion). But due to the rise in oil price and the demands of individual ministries, expenditure is now likely to go up to $ 1,000 billion riyals ($ 300 buillion).

The third Plan gives top priority to the strengthening of the role of the Sharia (Holy Law), to the defence of the religion, and internal stability of the Kingdom. The Plan aims at, developing productive industries, notably the industrial zones of Yonbu and Jubail, improving the quality of life in the smaller and more distant towns and villages, developing the kingdom's manpower resources by imparting education and vocational training. It tries to steer the private sector to serve the nation rather than earn profit. Easy credits are provided and subsidies reduced

The first development plan of Saudi Arabia aimed at diversifying sources of national income and reducing dependence on oil by increasing the share of other productive sectors in G. D. P.

The plan tries to take advantage of the fruits of the second plan and to direct the economy towards capital- intensive development. Main emphasis will be on the creation of increased output capacities in the productive sectors, together with an expansion of critical development resources such as energy and water. In the plan the total expenditure on civilian development is 7,83,000 million riyals ($ 235,843 million) at current prices, which reflects a significant departure from the earlier strategy of creating physical infrastructure for the development of the productive sectors.

From 1962, Saudi Arabia has been showing marked economic progress. However their rapid modernization process is severely hindered by several constraints. One of them is the shortage of adequately trained manpower, because their system of education is fifty years old. Moreover Saudis do not evince any interest in education because many opportunities are open to them with minimum education on account of abundant oil revenues and subsidised social services. The pervading conservative influence of the Wahhabites in the country is a strong social bottleneck to development. Religious training in the educational curricula is strongly emphasised. They stand for the total exclusion of Saudi women from the work force. Moreover the opposition of the powerful religious leaders (Ulama) to many aspects of modernization has slowed down the entire

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Eucalyptus Plantation in Bhavnagar

H. R. Sanghavi*

INDICATIONS are available that Bhavnagar District in Gujarat may earn the distinction of becoming the first Eucalyptus district in India. The farmers of the District seem to have grasped the economic viability of eucalyptus (Eucalyptus Hyiid) plantations

Social Forestry

The programme of eucalyptus plantation is being carried out in the District as part of Social Forestry Programme. The programme is being implemented in close co-operation with the Agriculture Department of the District Panchayat and the Extension Division of the State Forest Department. If the Small and Marginal Farmers' Organisation could also extend its helping hand the programme could succeed still further.

The manner in which the farmers of Bhavnagar District have been attracted towards plantations of eucalyptus indicates that during 1981 Van Mahotsava, there will be a very substantial rise in the demand for seedings of eucalytus. The Extension Units of the Forest Department as well as the Forest Department of Bhavangar are preparing themselves to meet this expected demand and they are nursing one crore seedlings in different nurseries of the District.

The farmers of the District have been attracted towards eucalyptus plantation during the last three or four years. The eagerness of the farmers of the District for these plantations can be gauged from the fact that the farmers of Bhavnagar District alone have demanded nearly 1.57 crore seedlings. In the whole of Gujarat State about 6 crore eucalyptus seedlings are to be sown this year. Thus the demand for seclings from Bhavangar District alone is so large that it may assume the status of eucalyptus District not only in Gujarat but also in the country as a whole.

A gardener watering eucalyptus seedlings in a nursery

The benefits that accrue from this plantation include availability of firewood, prevention of soil erosion, and the possibility of establishing paper mills etc. If the farmers plant eucalyptus trees on the peripheries of their fields, it not only prevents damages being done by animals but also protects the farmers' crops from strong winds and heavy rainfal. Moreover, eucalyptus trees are free from diseases or pests.

The farmers of Bhavnagar district are trying to develop various models of farm forestry involving various spacing, mixed cropping pattern, fertilisers and irrigation. Various models to raise eucalyptus plantations with different spacings have been tried in collaboration with the forest department. If the plantations are made at the spacing of 60 cms X 60 cms., it has been estimated that in one acre of land, about 10,000 seedlings could be sown. But no other crops could be taken from this land. However, if the plantations are done at the spacing of 60 cms-240 cms., another crop could be taken between the rows. Thus farmers are able to earn sufficient supplementary income for their maintenance.

If the planation of eucalyptus is done at a spacing of 60 cms X 60 cms., at the end of 3 years nearly 10,000 rafters could be prepared and if each rafter is priced on an average of Rs. 10 the farmers shall get about Rs. 1,00,000/-from one acre of land. Now if an amount of Rs. 15,000/- to Rs. 20,000|- is deducted towards the cost of water, fertilisers and other incidental expenses, the farmers would get a net profit of Rs. 80,000/-from one acre of land. This way the eucalyptus Plantation, gives the farmers an opportunity to increase their earnings.

More Rain

Many parts of Gujarat experience drought conditions now and then and therefore the success of crops largely depend upon good monsoon. To attract rains, it is imperative that the forests are developed. The farmers love trees and therefore if they are given incentives to grow more trees, the forests could grow speedily. If the farmers are to be made to take interest in raising forests, they must be shown how they can profit by growing trees.

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In collaboration with the Forest Department, various models to raise eucalyptus plantations with the different spacings have been tried at Surendrabag farm in Bhavnagar District. Surendrabag is working towards developing a model which can be caled "Density Plantation of Eucalyptus for higher profits". The increase in the plant population can cause shortage of nutrition. This fact has been kept in mind in the models tried out at Surendrabag.

Three-year-old Eucalyptus plants at Surendrabag farm

Also experiments were carried out to provide nutrition to the trees through fertilisers. To make this nutrition easily available, there must be enought moisture in the root zone. This condition can be created by increasing the number of waterings. Thus the Density of eucalyptus plantation can be increased by 3 to 6 times as compared to the conventional one. The density plantation involves more trees with heavy doze of fertilisers and more irrigation. This has given amazing result. The growth of eucalyptus, has been more in the second and third year compared to the first year, as against the conventional farm forestry, resulting in an increase in income three to six times.□

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AYURVEDA, the "Science of Life" has been sustaining the health of people of India and the neighbouring countries from time immemorial.

The art of healing was propounded in the Upangas or branches of the*Vedas*. The *Rik Veda*, the oldest repository of human knowledge, was replete with the *Srtias* or *Mantras* of the theories and practices of ayurveda. In the other *Vedas*, specially the *Atharva Veda*, remedies including surgical operations for several diseases were enshrined. The *Asvins* were the celebrated physicians of the vedic period, and they did miracles in the field of medicine and surgery. They revitalised lay individuals and saints, injected vigour and vitality in the sterile, cured serious diseases like tuberculosis and so on. Many surgical feats like transplantation of head, providing artificial limbs and probing of urethra were quite common in those days.

The *Upanisadic* period witnessed widening horizon of the philosophical background of the fundamental doctrines of Ayurveda. During this period, many ayurvedic classics were composed. Though most of these classics are unfortunately not available, works of Agnivesa, Sushruta and Kashyapa, belonging to the bygone era, have been preserved. During this period ayurvedic practice had eight specialised branches :

1. Kaya Chikitsa or Internal medicine
2. Shalya Tantra or Surgery
3. Shalakya tantra or treatment of diseases of eye, ear, nose, throat and other parts in head and neck.

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*Deputy Adviser (Ayurveda) Ministry of Health and Family Welfare

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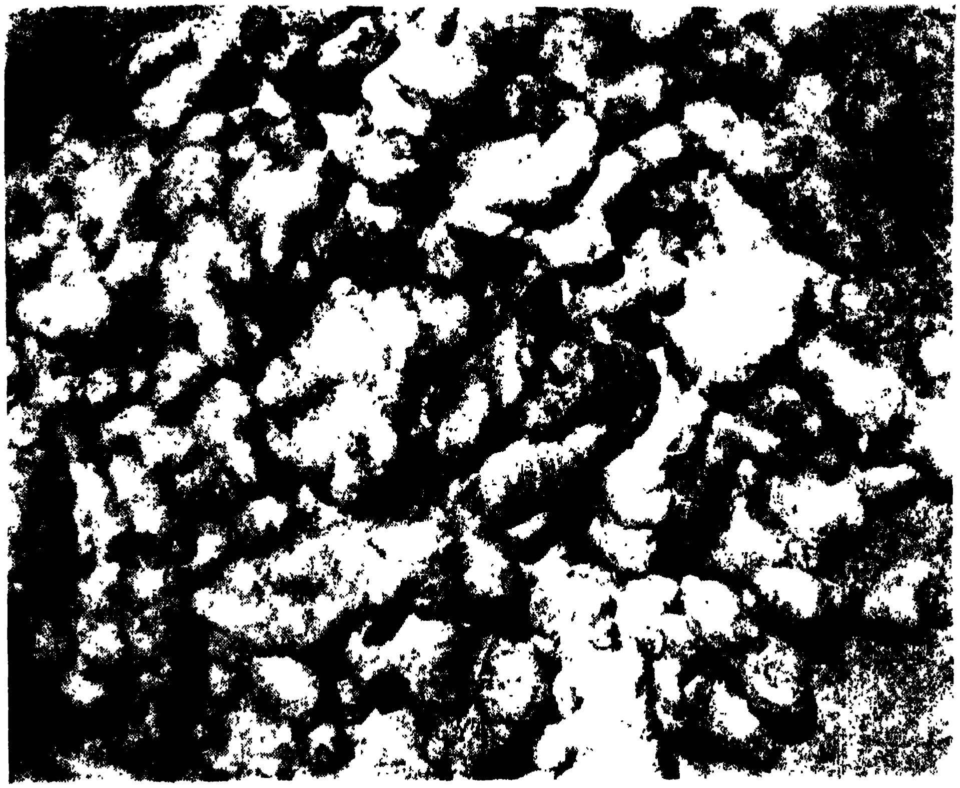
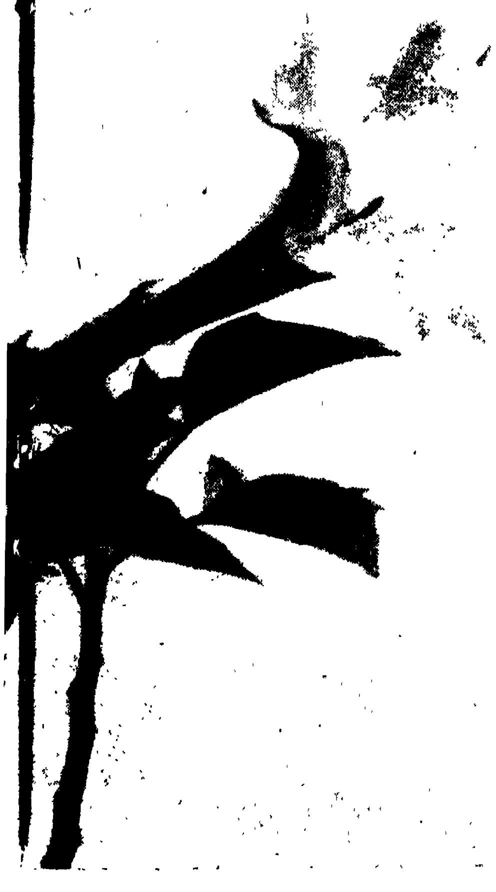


A pile of Ardraka (Zingiber Officinale)



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4. Agada tantra or treatment of ailments caused by different types of poison.
5. Bhuta vidya or treatment of diseases cause by evil spirits, invisible germs and other psychic disorders.
6. Bala tantra or management of children and their diseases.
7. Rasayana tantra or geriatrics including rejuvenation therapies, and
8. Vaji karana tantra or treatment of impotency and sterility including the administration of aphrodisiacs.

Most of the works composed by several specialists on each of these branches, referred to by later commentators, have been lost.

In the Pauranika and Aitihasika are when original versions of the Ramayana and Mahabharat were composed, this science was at the apogee of its development. Works of this period are replete with references to war surgery and such emergency treatment.

Ayurveda enjoyed a unique position in the pre Buddhist and Buddhist periods. The then Takshashila university attracted several students from far off countries. Jivaka, the physician of Lord Buddha received specialised training in surgery in this university. Atreya, at that time, was the head of the medical faculty and under his supervision Jivaka performed many major surgical operations including brain surgery which fact was recorded in Buddhist literature. For propagation of religion, monks of this time visited Nepal, China, Tibet, Mongolia, Burma, Indonesia, Sri-Lanka and many other neighbouring countries and alongwith religion, they used to teach ayurveda also. In fact

A branch of Sobhanjana
(*Moring oleifera*)

through ayurvedic teachings, they found the propagation of religion easier. Ashoka, one of the Buddhist monarchs had established many herb gardens with a vedic methods of treatment, and incorporation ot poor patients. Post-Buddhist period witnessed the ban on Panchkarma, surgery and practice of classical ayurvedic methods of treatment, and incorporation of many metallic and mercurial preparations into the ayurvedic pharmacopoeia.

Frequent external invasions and internal conflicts resulted in the destruction of libraries discouraging scholars of intellectual pursuits. Mediocres, in the name of religion, were engaged in intellectual acrobatics. It lost royal patronage and for the most part went into the hands of quacks and charlatans. Feeble attempts were made to revive ayurveda and to restore its due position in the health development programmes, but with no success. The foreign rulers, in pre-independence era, viewed with contempt anything connected with Indian culture and tradition. The elites of this country were sufficiently indoctrinated to ignore ayurveda as a bundle of traditional superstitious practices. Ayurveda, a living science which guided the destiny of the health of our people for thousands of years was thus relegated to the back seat and almost became 'history of medicine' rather than a 'Science of Life'. It gradually went into the hands of people who had no other means of livelihood. As a result of the economic conditions, then prevailing, the neglect of ayurveda, the standard of health of our people came down and the country became the abode of epidemics and sufferings. In this situation, controversies and conflicts among ayurvedic physicians and patrons were the natural corolary. Therefore, after independence, our leaders faced a herculian task to revive this science by giving due weightage to different view points and by cleansing it of conturies of accretions.

When the system of traditional healing was being injured, the women folk of this country alongwith some ex-rulers and zamindars, saved the science from complete anihilation. However sophisticated or financially sound a family may be, the kitchen and young children of the house are left to the care of the mother. Ayurveda prescribes many dos and don'ts in diet for different seasons and different parts of the day as well as night. For different common ailments simple remedies are prescribed which are mostly available in the kitchen, kitchen gardens and in the fields surrounding the villages. Ladies of the House adopted them, of course, without knowing them to be ayurvedic prescriptions, in their day to day routine and thus the practice of ayurveda continued uninterruptedly in this region of the world.

Economics of Ayurveda

Most of the Ayurvedic medicines are drawn from the plants available in the forests of this country. Herbal plants for common ailments are available in the fields and forests near our villages. Traditionally, villagers, at least some senior members of the village, are capable of identifying them and using them. Most of these herbs are harmless and that makes their use very easy. For a physician or a pharmacy, these herbs are collected from the local forests, and therefore, the forest dwellers of poorer, sections of the village get wages during their period of unemployment. The pharmaceutical processes for preparing medicines out of these herbs do not involve any sophisticated techniques. Thus, semi-skilled persons handle them and get their employment. A pharmacy for the manufacturing ayurvedic drugs can be started in a small scale. Notwithstanding some of the big ayurvedic pharmacies, most of the ayurvedic manufacturers depend upon small capital. Out of this capital a significant portion goes to persons who collect herbs, pound, boil and make pills and powders out of them. Foreign exchange for the most part is not required for importing raw material for these medicines. Similarly, foreign trained experts and sophisticated equipment are not required for their manufacture. For the most part, these medicines are cheap except those containing gold and other precious metals and minerals. These costly medicines aee required only for serious diseases and in comparison to the expenditure which would have been involved otherwise even these costly medicines, become less expensive.

Side benefits

Since these medicinees are in use for thousands of years, people know certain that they are non-toxic. Even toxic drugs are processed in such a way that they become non-toxic when administered to a patient. While curing a disease they build up the body resistance against the diseases. Thus instead of side reactions all of them have side benefits. Ayurvedic drugs are meant for both the patients and healthy individuals. While they have the power to cure a disease, they rejuvenate the entire system.

Apart from drugs, ayurveda prescribes different types of diet and regimens for the prevention and cure of diseases. Most of these are known to our people in villages. They know traditionally what to eat and how to behave in a particular climatic condition. In fact some of these traditions have taken the shape of religious rites and people follow them automatically without knowing that these are meant for their health. Thus, ayurveda is more conducive to the tradition and culture of this country.

In Ayurveda, more emphasis is laid on the prevention rather than cure of a disease. The regimens are meant for different parts of the day and night, right from the early morning when a person leaves bed till he retires. These regimens are also precribed for different seasons with which our people are well acquainted. Therefore, people in villages are generally free from serious diseases. They remain healthy for the most part. For their common ailments they know the utility of herbs in their kitchen or fields surrounding the village. Only when the disease goes beyond one's control one consults the local vaidya and only in serious cases the patient is referred to a hospital. Thus, self-medication, both for prevention and cure of diseases, is a rule rather than exception in ayurveda. This is safe because the herbs are harmless and people have the knowledge of their utility traditionally.

No elaborate investigations

Diagnosis and treatment of diseases according to Ayurveda do not involve any elaborate laboratory investigation. The physician arrives at the diagnosis by physical examination of the patient including his pulse, stool, urine, tongue, eyes and skin. They generally do not need any electric and electronic equipment for their aid. Thus, ayurvedic physicians find it at home to work in remote villages.

Ayurveda has its own concept of drug composition, drug action, genesis of diseases, and line of treatment. A disease in a particular organ is never treated in isolation. Alongwith the effected organ or viscera, the whole body is kept in view while treating the patient. It is not only the body but also the mind, intellect and soul which are taken into consideration before initiating any treatment. In fact psychosomatic concept of the disease is an inbuilt character of Ayurveda.

Government's encouragement

After independence, both the Central and State governments have recognised ayurveda and other systems of traditional medicine for utilisatin in the health development programmes of the country. The plan allocations for development of ayurveda and other systems of traditional medicine have been as follows : —

First five year plan—Rs. 0.40 crores
Second five year plan—Rs. 4.00 crores
Third five year plan—Rs. 9.80 crores
Fourth five year plan—Rs. 15.83 crores
Fifth five year plan—Rs. 25.07 crores
Sixth five year plan—Rs. 60.00 crores (approx).

It will be seen from the above that the Government has been providing more and more funds in every successive plan for the development of these systems. As a result of recognition of ayurveda by the Government, ayurvedic dispensaries and hospitals were opened under Central Government Health Scheme and the expenditure on ayurvedic treatment is reimbursed to Central Government employees under CS(MA) Rules.

A gardener tending plants of Haridra (Curcuma longa)

Education, Practice, Development

At the time of independence, there were different types of courses for study in various ayurvedic colleges and there was no statutory control over the practice of ayurvedic physician. In 1971, by an Act of the Parliament Central Council for Indian Medicine was established. This Council has already prescribed the minimum standard of education which is introduced uniformly in all ayurvedic colleges of the country.

To implement various planned programmes for the development of ayurvedic system there is an Advisorate with an Adviser at the Centre. In most of the States there are independent Directors for the execution of various programmes for development of ayurveda.

For research into various aspects of ayurveda the Government of India has constituted a Central Council for Research in Ayurveda and Siddha. The main areas of their work are clinical research including fact finding, mobile clinical research, drug research, medico-botanical research and literary reserch. These programmes are being implemented by them through their several Central Research Institutes, Regional Research Institutes, and Research Units.

The Drugs and Cosmetics Act is now applicable to Ayurveda and ayurvedic pharmacies are being licenced to manufacture their products under hygienic conditions and supervision of experts.

Ayurvedic drugs are being used in this country since thousands of years. Therefore, there are regional variations in the manufacture of the same drug. To bring uniformity in the methods of manufacture, raw ingredients and finished products an Ayurvedic Formulary has been prepared by the Ayurvedic Pharmacopoeal Committee constituted by the Government of India. The Central Council for research in Ayurveda and Siddha has already laid down standards of some of these preparations and the work on the remaining medicines is in progress. Methods of testing the genuineness and standards of ayurvedic preparations are also being included for which a Pharmacopoeal Laboratory in Indian Medicine has been established at Ghaziabad. Financial assistance is also being given to State Ayurvedic Pharmacies for increasing the quantum and standards of their production and for development of herb gardens. The Government of India has also registered a Corporation under Companies Act to manage a Central Pharmacy of Indian Medicine at Ranikhet with a view to making available potent and genuine ayurvedic drugs at a reasonable rate. At present, there are about 3000 ayurvedic pharmacies in the country.

The Government of India has established a National Institute for Ayurveda at Jaipur for providing undergraduate training, post-graduate training and research facilities. For similar purposes an Ayurvedic University has been estbalished at Jamnagar in Gujarat. At present, there are about 100 recognised ayurvedic colleges in the country where the syllabus prescribed by the Central Council of Indian Medicine is being implemented. About 3000 graduates are coming out from these colleges every year. In Banaras Hindu University, an Institute for Post-graduate training in various specialiaties of Ayurveda is functioning. Besides, there are 16 departments in different ayurvedic colleges of the country where post-graduate training facilities are available. At Banaras and Jamnagar, short term post-graduate courses for foreigners are also being arranged. There are 25 Boards and 37 University faculties for regulating education and practice of ayurvedic physicians.

Medical Aid in villages

Ayurvedic physicians in villages are providing medical aid to the villagers. Now a days, there is a greater demand for ayurvedic physicians in cities where patients who are not cured by other systems and who had also side effects of the earlier treatment, come to these physicians. Besides, there are about 250 hospitals and 1500 dispensaries of ayurveda in the country. For providing medical aid through ayurveda to Central Government employees, many dispensaries have been opened under Central Government Health Scheme. There are ayurvedic dispensaries under Employees State Insurance Scheme and Mine Labour welfare Associations. Many Community health Volunteers have received ayurvedic training and ayurvedic physicans are also employed as third doctors in some Primary Health Centres in States.

Fruit bearing branches of Emblica officinalis Garten

At present there are about four lakh ayurvedic practitioners in our country. Out of them about 2.5 lakhs are regisered under various Boards and Faculties for their practice. Of them, about 1.2 lakhs are institutionally qualified. About 60,000 ayurvedic practitioners have undergone training in clinical and para-clinical subjects of modern medicine.

Economic Condition of Practitioners

Most of the ayurvedic practitioners. are financially backward. Their training and ethics do not permit them to amass wealth at the cost of suffering humnity. They teach people to adopt different measures for the prevention of diseases. This obviously reduces the number of their clients. They, for the most part prescribe home remedies available in the kitchens and gardens as well as fileds surrounding the village. This deprives them from getting fabulous commission as a result of drug-sale. These prescripptions are very simple, well known and harmless for which the patient himself starts administering and propogating them. This further reduces the clinetele of the ayurvedic physicans. If the patient comes with a serious disease then after treatment, the relapse of the ailment is very rare. In fact all ayurvedic medicines being tonics, they promote the body's immunity against diseases. Thus, even an obliged patient does not return to pay fees again but only to express his sincere gratitude. Ayurvedic physicians and students are mostly drawn from poor sections of the society. They, therefore, do not grudge their poverty. But, in this sophisticated and materialistic world, because of the economic backwardness of the physician the science of ayurveda is often misconstrued as ineffective or less effective.

Ayurveda goes abroad

Day by day, ayurveda is becoming more and more popular in foreign countries. In the past, delegations from foreign countries like Srilanka, Nepal, Burma, Japan, Indonesia, Mongolia, China, West Germany and America have visited this country to study ayurveda. Some of these delegations have come under Government sponsored cultural programmes. Ayurvedic Physicians of India have also been invited to many foreign countries to teach ayurveda there. Many foreign students are now in India to study ayurveda in our colleges. For foreign doctors, short term courses in ayurveda have been instituted by Banaras Hindu University at Varanasi and Gujarat Ayurvedic University at Jamnagar. The World Health Organisation have appreciated the need for the utilisation of ayurveda and other systems of traditional medicine in the health development programmes of member countries. During the days of Takshashila and Nalanda Universities, our country was the leading light in the field of arts and sciences. Indian doctors then were very much in demand outside the country. But later we became eternal students in as much as our scholars went to foreign countries generally for learning and foreign scholars came here mosly for teaching. The trend is being reversed now through Yoga and Ayurveda. ☐

Import Export Policies of 1981-82—An Appraisal

(*Contd. from page* 8)

"Ghost of Actual User" Condition

After a good deal of discussions, the Alexander Committee Report had recommended that the "Actual User" condition for the OGL items should be retained for the first one or two years and it should be gradually relaxed so that competitive open trading in imported items could reduce the premia operating in the parallel economy. Inspite of this clearly logical recommendation, the import policies year after year, are remaining haunted by the ghost of "Actual User" condition. It is useful that fresh thought is given to this in regard to the entire policy frame. It is commendable however that the new policy has taken a bold step—though a small step—in the right direction, in removing the AU condition for duty-free REP scheme against exports from the decentralised sector.

Missing Elements

The new policy, like the earlier ones, has a few missing elements. In India licensing system should gradually give place to tariff system. There is no evidence of the trade policy frame moving in this direction. Further, as stated earlier, pronouncements on tariff policy and those on import licensing policy are made by separate Ministries without any explicit recognition of the need for an integrated approach. Import and export services should receive greater attention than the import-restrictive or export control policies. The policy statement is silent on the important question of the establishment of National Trade Information Center, which is hanging fire for the last several years. Another important issue which is not receiving adequate attention is that of coordination between the imperatives of the international econcmic relations induced by the considerations of New International Economic Order and the domestic import-export policy frame. Obviously, if greater cooperation among developing countries is, for example, an NIEO objective, then at least some specific import-export policies need to be initiated so as to foster this coperation in an effective manner. Here again, perhaps, lack of coordination between the Commerce Ministry and the External Affairs Ministry could be a constraint, or could be a cause for a narrower conception of the import-export policy frame.

Economic Implications

The new policy has set for itself the right type of objectives in terms of, (i) providing essential inputs for strengthening domestic production base, (ii) further reducing dependence on imports, (iii) providing greater impetus to exports and (iv) to further simplify and streamline procedures. It is difficult to envisage all these objectives in the course of one year itself. In fact institutional response lags, which are often ignored in the discussion on policies, may necessitate stability of a policy frame for 2-3 years in order to realise the cherished objectives, particularly in regard to production and export activities. The new policy may succeed in restricting import but it is incorrect to conceive that it will have any significant favourable effect on the balance of payments situation of the country during 1981-82 period. While more than 60 per cent of the import bill is due to Fuel and Fertiliser (and food) (F^3) categories, there is very little manoevarability regarding the imports of the non-F^3 categories without adversely affecting the domestic production activities. The uncertainties regarding the composition of OGL, restricted and banned categories and frequent notifications for policy changes, would continue the tendencies of excessive importation and cornering by a few, thereby generating large premia on import licences. The new policy could provide some anti-inflationary effects to the extent that domestic production activity would boost up. However, this would be only marginal.

The new Import-Export Policy of 1981-82, is pragmatic and innovative in several respects. However, it has in it some degree of reversal of the rationalisation process which was initiated with effect from 1978-79 policies as a sequel to the Alaxander Committe Report. A number of innovative schemes for encouraging the small scale sector are bound to disburse the export-oriented small entrepreneurship in different parts of the country. The effect on the total import bill of the country could be marginal whereas the export effort is likely to receive a boost with product diversification. Lack of coordination between licensing system and tariff policies, trade policies and NIEO objectives, inadequate recognition of import management services as against import-restricting policies and export promotion services as against export incentives, are some of the weaknesses not necessarily peculiar to this year's policy-frame only. In any case, Commerce Ministry and in particular CCI&E's office, deserve to be congratulated for producing a cogent and imaginative import-export policy book at a time when the country is passing through a most difficult period on the balance of payments account. ☐

Significance of Space Research for India

Tapan Das*

FROM the day the Soviet cosmonaut Yuri Gagarin zoomed into the space 20 years ago, vast stretches of scientific knowledge have been laid bare before the mankind. Baikonour is the place from where the Soviet Union launches its spaceships. It is also the place from where India entered into the space age through the launching of Aryabhata and Bhaskara earth satellites with the help of Soviet rocket carrier.

India has no doubt gained considerable experience in space research. Indo-Soviet cooperation has played a significant part in it during the last few years. The proposed joint space flight by an Indian cosmonaunt along with a Soviet spaceman therefore assumes added significance in this context. What benefit can a developing country like India get from space probes ?

India with its vast area and large population, nearly 80 per cent of it being essentially agriculture-based stands to gain immensely from space research if results achieved by others in this field are any guide. As the leading scientist and pioneer of space research in India, Dr. Vikram Sarabhai said long ago that space research was essential for social progress. India can get accurate data on natural wealth and mineral resources of the country through space probes. Cosmic survey is also not alien to India's cultural heritage.

Space photography offers immense benefits and helps economy of country in diverse ways. Photos obtained by the spaceships and other experiments can help meteorologists to predict the origin of cyclones, floods and storms and take remedial measures in advance. Spaceships help to photograph vast areas in 4-5 minutes while conventional surveying methods take years involving huge expenditure. Photographs taken from spacecrafts have enabled the scientists to acquire valuable information, which could not be provided by standard photographs.

The cost of geological survey has now been considerably reduced, thanks to space photographs. Difficult mountainous areas which, for instance, were beyond the comprehension of ground-based geologists and equipment, can now be surveyed by multispectral photography from spaceships. This survey is essential from the point of view that tectonic processes often occur in mountainous areas.

Geological mapping with the help of multispectral space photography can enable geologists discover mineral, oil and gas bearing structures. The Soviets have made good use of space photography for designing some major hydro-technical and hydro-power complexes, railways including the Baikal-Amur Railway, canals and for studying the shifting river flows.

Hydrologists on the other hand can use the data for surveying water resources. Hydrologists can get from spacecrafts information about water reservoirs, humidity of soil, distribution of ice cover, glaciers and snow reserves in the mountains. This information will enable them to forecast the outflow of rivers and plan for power engineering and irrigated farming.

Indian Satellite Bhaskara being linked to the Soviet carrier rocket

Closely connected with natural resource survey and hydrological engineering are the problems of agriculture and cattle breeding. In a country like India where agriculture is still largely dependent on the vagaries of nature and both famine and floods are a recurring phenomena, space research offers various remedies. The problems of fodder, pasture and irrigation are also acute in India. One can, however, confidently look forward to the solution of these problems in future; provided the experiences gained by other countries are applied. Prof. U. R. Rao, a noted Indian space scientist says that India can benefit in the spheres of meteorology, remote sensing of earth and communication through joint space research with the USSR.

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* Journalist and Author.

President Brezhnev decorating Yuri Gagarin with a Pilot Cosmonaunt of the USSR

In the USSR, desert areas in several Republics have been turned into green pastures following forecasts made by earth satellites helped detect lentils of fresh and poorly mineralised water to the surface of Kyzyl-kum desert. Reconnaissance drilling corroborated the forecast and the water deposit has been developed for the needs of cattle breeding there.

Spectral studies of the atmosphere and natural formations conducted by Soviet specialists have opened up prospects for controlling the environment on a global scale and have shown the possibility of the automatic identification of such objects as flora, soils and mineral composition of soils from their spectra. It is now possible to even differentiate between the healthy flora and the flora affected by diseases. This is very important for agricultural scientists and forecasters as well.

Terrestrial observation from space can be used for the elaboration of effective methods of weather and climatic changes, forecasting for long periods ahead. There is no denying the fact that weather and climatic changes and their correct prediction are closely linked with a country's economy. As has been shown by experience, space data can provide definite clues to the formation of hurricanes, cyclones and dust-storms. Data about the formation of dust-storms have also led the scientists to understand the role played by the dust-storms on the earth as a mighty factor of air pollution. Air pollution in turn has a serious effect on the weather and climate. Scientists have found that the contrasts of the temperature of the clean and polluted surfaces of water and also differences in the degree of the polarisation of solar light, reflected by water, can serve as reliable indicators of pollution.

These studies are also of great value in following sea and ocean currents, for reconnoitering phytoplankton and zooplankton contents in the water. Along with the data about the temperature of the surface of water, these studies can be of valuable guide to the search of the most probable areas of fish accumulation, and thus scientific methods of fish breeding can be undertaken. Study of ocean, its currents and its inter-relationship with atmosphere leads to easier and correct forecasting of weather.

In the modern times of scientific and technological revolution space research can play a very important role in communication. Promising results have already been obtained in this respect in countries like the USSR. In a country like India, space satellites can effectively contribute to the solution of communication gap problems at a much lower cost. Such problems as illiteracy and family planning can benefit a lot from space technology in India.

In fact, space technology has progressed so much that today scientists are talking of creating in the near future a global communication system with telephone subscribers in any part of the globe at any hour of the day. There are also plans of creating satellites with big multi-beam aerials, powerful transmitters and miniature transmitter-receivers resembling a wrist watch.

According to Soviet cosmonaut Gherman Titov, one can make a call from Moscow to Vladivostok, which is several thousand kilometres away. For this one has to switch on miniature transmitter-receiver and tell the city's code. The order is then processed by a computer carried by a satellite on a stationary orbit and the caller waits until the channel through which the call is to be put, is free. Space apparatus on a stationary orbit can maintain communication between an unlimited number of callers, he says.

Advancement achieved in communication through space science can also be utilised for spreading information through television. India with its meagre resources will take decades to build a communication network for spreading information to its 5,60,000 villages. A system based on the geo-stationary relay satellites is now able to relay television programmes to many remote areas in the Soviet Union.

Communications and radio-relay satellites in Soviet Union have replaced the expensive terrestrial installation. Many remote areas in the North Pole and Kamchatka in the Soviet Union now receive television programmes from Moscow. These satellites also guarantee reliable colour TV reception with the help of ordinary antennae.

In the present days of shortage of raw materials and minerals, space research holds great promise. Scientists have acquired valuable knowledge from technological experiments in space. It has been found that certain raw materials and minerals which cannot be produced in the conditions of our Earth's gravitation can be obtained from experiments in conditions of weightlessness and deep vacuum.

Experiments carried out by the Salyut-6 spacecraft have resulted in the production of foam-metal which is stronger than even high quality steel and is as light as wood. Research in zero gravity has also proved very valuable for growing special semi-conductor mono-crystals. The need for artificial crystals is becoming greater day by day. They are used in semi-conductors, transistors, electro-accoustics, high-frequency technology, optics, support stones and high quality materials. Space research in this context offers unlimited opportunities.

Optics specialists have also been thrilled by the prospects of producing high quality glass and special lenses badly needed by the fibre optical instruments.

What can indeed be more fascinating than the use of space technology for solving the problem of energy which has plagued almost every country today ? Soviet scientists have already come forward with projects for creating high-altitude orbital power stations which will convert solar energy into electric power and relay it back to Earth. □

Environmental and River Valley Development

(*Continued from page* 6)

Temporary labour camps must be located, to the extent possible, in areas which will later be submerged so as to reduce the loss of forest cover. Even though the sites for resettlement and project colonies are selected well in advance, there should be no need to cut all the trees on these sites. Only those trees should be cut which stand on the residential plots or on the proposed roads and paths. Cutting of these trees should be taken up only when construction operations are imminent. The extent of clearance under the transmission lines should be related to the height of the standing trees, and the clearance restricted to minimum necessary width. Vegetation on island-formations in the rservoir above FRL should not be removed so that they may be developed as bird sancturies at a later stage.

Only when the incorporation of environmental aspects in the planning and execution is made a part and parcel of all River Valley and other Development projects, there would be hope to protect and preserve our natural environment and to fulfil the objective of rapid economic development on a sustained basis while safeguarding the natural resources including the air, water, land, flora and fauna for the benefit of present and future generations. □

Environmental Studies in India

C.S. Pillai*

AN All India Seminar on Status of Environmental Studies in India was organised and sponsored in The three-day Seminar was opened on the 26th Trivandrum by the Centre for Earth Science Studies. March by the Kerala Industries Minister, Shri P. C. Chacko, and nearly 200 scientists from different parts of the country participated, presented their papers and took part in the discussions.

The Co-sponsors of the Seminar included among others, Department of Environment, Government of India, Geological Survey of India and Geo-science & Technology Association of Kerala.

Dr. N.L. Ramanathan, Director of the Department of Environment, Government of India stressed the need for public participation in all environmental issues. He also underscored the importance of Environmental Information System. The scientists who participated in the seminar unanimously decided to institute a new society titled "Indian Society of Environmental Science".

All activities that adversely affect the quality of air, water, soil or biological resources should be controlled and monitored. All activities fostering and promoting harmony between man and nature should be cultivated and encouraged.

Ecosystems should be studied and understood in their total perspective by including interacting living and non-living resource components. These resources must be used judiciously so that drastic imbalances that are often irreversible do not occur in the environment.

Environmental impact analysis should be made for all types of development projects in the country. Trained environmental managers should be employed for ensuring environmental protection.

Environmental training should be initiated at school level to bring about environmental consciousness in the generation to come. Non-formal education system need also be implemented. In professional training centres environmental training should be initiated to create experts who will advise on environmental implications of all developmental activities in the country.

In matters of natural resources exploitation and conservation of environment, the purpose and objective of such activities should be properly understood, and measures taken accordingly for the well being of the people of the country, not only for the present day, but also for the posterity.

A scientific body may be instituted to deal with and suggest guide-lines for total development of the environment. This body will also provide opportunity for interactions between environmentalists of different disciplines by organising national conventions. □

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*Our Senior Correspondent at Trivandrum.

Fourth All-India Educational Survey

GIRL students accounted for 36.33 per cent (35 million) of the total enrolment in schools throughout the country. In all 95.4 million students were enrolled in recognised schools. Of these 70.28 per cent were enrolled in schools in rural areas. Girls constituted 33.92 per cent of the enrolment in rural schools

This was revealed in the Fourth Educational Survey carried out by the National Council of Educational Research and Training (NCRT), to collect information on schools, teachers and enrolment in schools. The survey was confined to recognised educational institutions catering to school education, in all the States and Union Territories. The findings of the Survey were utilised in the formulation of the Sixth Five Year Plan with regard to education.

For the country as a whole the gross enrolment ratio for the age-group 6 to 10 years was 81.65 in 1978 as against 80.30 in 1973. The gross enrolment ratio for the country for the age-group 11 to 13 years was 37.94 in 1978 as against 33.15 in 1973. Age-specific enrolment ratio for the age group 6 to 10 years is the percentage ratio of number of the students belonging to the age-group 6 to 10 years (irrespective of the class in which they are studying) to the child population in the age-group; the age-specific enrolment ratio for the age group 11 to 13 years can also be similarly defined. The overall age-specific enrolment ratio for the age-group 6 to 10 years for the country was 64.13 and for boys and girls respectively 76.27 and 51.28.

The survey figures show a marked decline in the school enrolment from classes I to IX and onwards. Total enrolment in classes I to V was 69 million (38.27 per cent girls). In the rural areas the enrolment was 75.70 per cent (36.18 per cent girls) of the total enrolment in classes I to V. In classes VI to VIII 18 million children were enrolled altogether, of which 32.70 per cent were girls and the corresponding enrolment for the rural areas was 11 million (27.83 per cent, girls). Enrolment in rural areas was 61.03 per cent of the total enrolment in classes VI to VIII. At the secondary stage of education the enrolment was 88.7 lakhs (28.69 per cent girls). The enrolment in rural areas was 47.12 per cent of the total enrolment at the time of Fourth Survey.

Children belonging to Schedule Castes constituted 14.73 per cent of the total enrolment in classes I-V and correspondingly Scheduled Tribes children accounted for 6.28 per cent the total enrolment in these classes. In classes VI-VIII the enrolment of Scheduled Caste students was 11.21 per cent of the total enrolment. Schedule Tribes students constituted 3.39 per cent of the enrolment in these classes. In the secondary classes (Class IX and onwards) again, their enrolment figure was 9.77 per cent (SCs) and 2.84 per cent (STs) of the enrolment.

Scheduled Tribes girls enrolled in classes IX and onwards accounted for 26.70 per cent of the total ST enrolment in these classes whereas there were only 21.53 per cent of girls in the Scheduled Caste category. However, from Class I to VIII there was only a marginal difference in the enrolment of girls belonging to the two reserved categories.

Out of the total number of 4,74,636 primary schools in the country, 34.75 per cent were single-teacher schools and only 8.85 per cent schools had more than five teachers.

The Survey indicated increase of 7.60 per cent in the number of recognised educational institutions over the period 1973-78. Of the total number of 6,34,144 institutions 5,56,873 were located in rural areas.

The pupil-teacher ratio at the national level was 41 at the primary stage, 25 at the middle-stage and 18 at the secondary and higher secondary stages of education in the country.

Primary schools|sections were available in 4,51,455 rural habitations covering 78.53 per cent rural population within the habitation itself. The corresponding percentages in the Third All-India Educational Survey (1973) were 44.33 and 76.12. About 92.82 per cent of the rural population has been revealed to be served by primary sections located either in the habitations or up to a walking distance of 1 km as against 90.34 per cent in 1973. In the country as a whole 77.31 per cent and 93.05 per cent of the habitations with a population of 300 or more were served by primary schools|sections within the habitation or up to a distance of 1 km respectively. About 66.94 per cent and 90.65 per cent habitations with population 300 or more and predominantly populated by Scheduled Sastes, were served within the habitation of residence or up to a distance of 1 km respectively. For the habitations predominantly populated by Scheduled Tribes the corresponding percentages are 77.78 and 90.48. In the year 1978 middle schools|sections were available in 1,03,601 rural habitations thereby serving 33.47 per cent of the rural population within the habitation. 6,44,971 (66.86 per cent) habitations covering 78.83 per cent of the rural population were served up to a distance of 3 km. At the time of the Third All-India Educational Survey (1973), 28.86 per cent and 71.97 per cent of the rural population were served by middle schools|sections within the habitation of residence and up to a distance of 3 km. ☐

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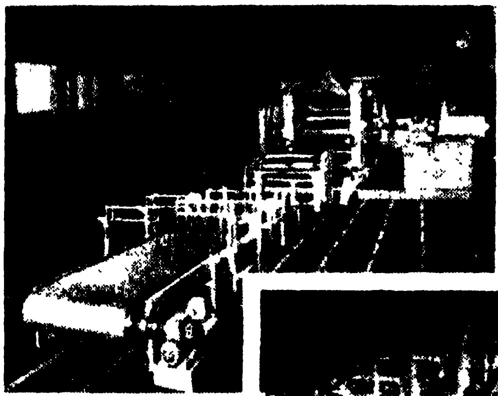

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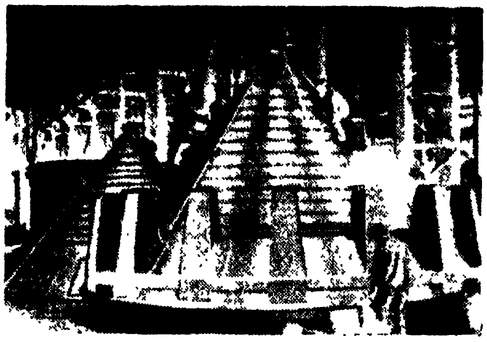

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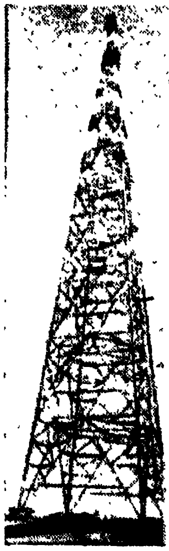

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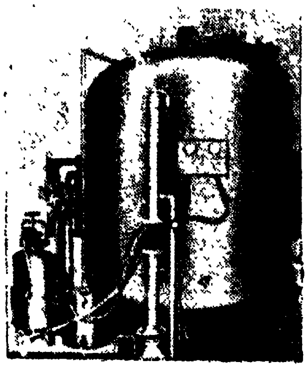

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TRENDS

Audio-visual Teaching Aids

DR. S. N. SARAF, Educational Advisor, Planning Commission, recently inaugurated a four-week training course for educators on the 'Application of Educational Technology for Preparing Audio-visual Materials'. More than 30 participants, mostly teachers from training colleges, participated in the course which was jointly organised by the National Council of Educational Research and Training (NCERT), New Delhi and UNESCO Office for Education in Asia and Oceania, Bangkok.

The programme seeks to develop a cadre of teacher educators who would appreciate that educational technolgy has to play a vital role in bringing about improvement in education. Necessary skill will be imparted to teachers so that they could use them in making learning more meaningful and productive by preparing and using audio-visual materials for classroom instruction. Speaking on the occasion Dr. Saraf said that teachers in non-formal centres should be oriented to prepare their own teaching aids to make education more attractive. □

Haryana Exports Cotton

HARYANA State Cooperative Supply and Marketing Federation has been serving the farmers of the State by providing them the facility of processing and marketing their agricultural produce. Recently it has also set up a ginning factory and a cotton seed processing complex at Ding near Sirsa at a cost of Rs. 2.60 crore. The daily capacity of the factory and the complex is about 300 bales and 1000 quintal cotton seeds, respectively. HAFED proposes to set up a similar factory at Ratia in Hisar district soon. 55,000 farmers and 350 villages will be benefied. A cotton ginning factory and a spinning mill with a capacity of 25,000 spindles is also proposed to be set up at Bhattu Kalan at a cost of Rs. 6 crore. The State Agriculture Department has introduced an Integrated cotton Development Project with the financial assistance of World Bank HAFED is earning foreign exchange by exporting cotton and cotton seed soil cake. □

Fuel from forest and Farm Waste

FROM Agricultural and forest wastes, smokeless, and inexpensive solid pelletised fuel has been developed by the centre for Rural Developmenet & Appropriate Technology and Bio-Chemical Engineering Research Centre of the Indian Institute of Technology, Delhi They used zoond glass, and other waste matter like coconut and rice husk, tree leaves, sawdust and so on, which are in plenty in our country-side, can be used to produce the fuel. One kilogram of waste can give fuel of the same weight which generates heat equivalent to that of one kilogram of coal.

Prototype plant to manufacture the fuel is being set up. Such plants in the villages and hill areas will go a long way in solving the fuel problem and also in discouraging indiscriminate felling of trees for fuel. □

Research to improve Goat and Sheep

AT the first national seminar on sheep and goat production and utilization held in Jaipur recently a number of impertant recommendations were made. They are :

1. The Union Ministry for Agriculture should constitute a committee of experts to lay down a policy for improving the breed of goat for milk, meat and hair.

2. Steps should be taken for conservation of important sheep and goat breeds.

3. A Central disease investigation unit with subunits in important agro-ecological regions should be set up.

4. Intensive programmes for development of feed resources on common grazing lands, land earmarked for forest and private land not suitable for crop production be taken up.

5. The rearing of the sheep and goat species should be taken up in mixed farming system.

6. The Government should not allow import of carpet wool liberally so as not to adversely affect the prices of indigenous carpet wool. Instead, emphasis should be on improving the carpet wool quality within the country.

7. The marketing of live animals and wool be properly organized so that the sheep and goat breeders are saved from the middle men and receive remunerative prices.

8. To achieve this, corporations might be set up in each State with a National Sheep and Goat Development Board to coordinate the activities of the State organizations. □

Pension for the Handicapped in Tripura

IN Tripura, 3550 physically handicapped persons are being brought under the pension scheme. For this this purpose a sum of Rs. 3,18,600 has been earmarked in the current financial year. This information was given by Tripura's Education Minister, Shri Dasarath Deb in the State Assembly while replying to a question by Shri Khagen Das recently. □

Hudco Exceeds Loan Target

HOUSING and Urban Development Corporation (HUDCO), a Government of India Enterprise, released during 1980-81 Rs. 90 crores to different borrowing agencies spread over 16 States and 2 Union Territories. This is 17 per cent more than the amount released during 1979-80 and exceeds the target set for it for the year 1980-81. The major beneficiary agencies to which the amount released exceeds Rs. 8 crores are in the States of Andhra Pradesh, Gujarat, Karnataka, Rajasthan, Tamil Nadu and Uttar Pradesh. Kerala, Maharashtra, Madhya Pradesh, Punjab, Haryna, West Bengal and the Union Territory of Chandigarh received loans ranging from Rs. 2 crore to Rs. 5.4 crores.

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BOOKS

Social-Economic Change

Economic & Social Change in India by S. L. N. Simha; Publishers : Vohra and Co., Bombay; pp. 115: Second Edition 1980; Price Rs. 25.

SIMHA has written a good number of articles and books on Economics, Finances and socio-cultural values. In the title under review he has succinctly and perspicaciously described the substantial economic and social changes which India has undergone since the dawn of independence. A traditional society is in the process of transformation towards modernities. The socio-cultural perspective, though clouded now and then, is nonetheless not bleak. Much has been achieved and yet much remains to be achieved.

The path ahead is doubtless beset with considerable difficulties and onward march is quite an uphill task. Despite an impressive build-up of Industrial base, entrepreneurial potentialities and managerial skill the country is not speeding fast towards the objective of social justice. There are evidences of feudalistic and communal overtones ; caste, creed, community, and languages are exploited by vested interests, and chauvinistic self-seekers. All in all, solution to the problems is quite possible. While Government should initiatively and actively work for economic growth and social justice, the intelligentsia comprising writers, educationists, artists, sociologists, politicians and such others should campaign for national integration and regeneration of moral values. The book is worth-reading and modestly priced.

T. C. Rastogi

A Comprehensive Book on Khasis

Local Government in Khasi Hills by Umasaday Bhatacharjya; Vivek Publishing Company, Delhi; 1980; pp. 263 ; Price Rs. 70.

THE institution of local government has been one of the pillars of Indian administration, more so in the case of north-eastern region. For Khasis, this practice of self-governance is age-old. They managed all their affairs through *Syiems* or Kings on the basis of popular will and consent freely expressed.

The book under review seeks to study in the historical perspective and in depth the unique features of organised system of self-government and democratic traditions in the Khasi Hills States.

A few interesting points observed in the book are that the initiation of Syiemship (kingship) is peculiar to Khasi Hill States, that the Khasi electors have the power to disqualify the next heir for good reasons according to their custom, and that the Khasi women inherit and hold property but have no right to vote in the elections of chiefs. The Khasi Hills has the highest rainfall in the world. Cherrapunji with 485 inches used to be described as the wettest place on earth. But that pride of place has been taken over by another village Mawsynram, situated about 10 kms. towards east of Cherrapunji. The average rainfall at Mawsynram is 577 inches per annum.

The book under review, which is vastly comprehensive and informative, will be of inestimable value to general readers, researchers and those engaged in the task of running local government institutions in the country in general and north-eastern region in particular.

S.R.S.

Financial Management

Social Cost-Benefit Analysis by D. Aruna, Institute for Financial Management and Research, Madras, 1980 ; pp. 124 ; Price Rs. 25.

THE BOOK under review, within about a hundred pages, attempts to deal with the basic principles of Social Cost Benefit Analysis (CBA), in the development—planning context, and to summarise the main developments in the literature during the last ten years, relating these whatever possible, to the Indian scene.

The basic principle of Cost-Benefit Analysis is both simple and conceptually attractive. It is based on the logical proposition that any proposed activity can be considered socially profitable, only if it promises to yield *social* benefits more than the *social* costs it will entail. However, the translation of this simple proposition into a methodology fit for application in developing countries introduces several complications, the most important of which are the problems raised by the unsuitably of the market pricing system for a valuation of social costs/benefits, and the consequent need to devise a new pricing system. The alternative pricing systems formulated by the OECD on the one hand and the UNIDO on the other have been generally accepted as suitable methodology for project appraisal, though the relative merits/demerits of the two systems are still a matter of controversy. Regardless of whatever both at the national and the project level, are fully aware of the limitations of the tool that they are handling.

The book is divided into five sections and the aim of the thought contest is two-fold : first, to introduce the reader to the essentials of CBA in general or non-technical and subsequently in technical terms, second to place before him a brief but critical survey of the three approaches in current use namely, those of the Organisation for Economic Co-operation and Development (OECD), the U.N. Industrial Development Organisation (UNIDO) and the World Bank (IBRD), so that the reader may judge for himself the theoretical acceptability and practical utility of each approach. It also briefly surveys the Indian scene and thus an attempt has been made to keep certain theoretical controversies out of the exposition and to relate it, whenever possible to Indian context. The book concludes with a survey of the horizons opening out to the C-B Analyst.

S. K. Dhawan

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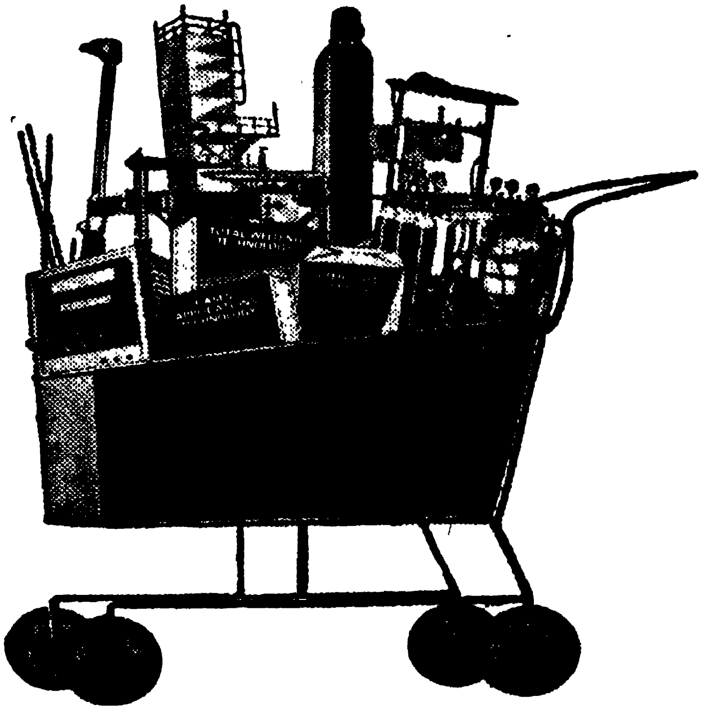

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Rajasthan in a Capsule

Folklore of Rajasthan—By D. R. Ahuja—National Book Trust, India, A-5, Green Park, New Delhi-110016—Pp 176—Rs. 11.75.

THE TITLE is a misnomer because the book is not confined to 'folklore' but deals with many other things such as the geography, history, traditions, customs etc., of Rajasthan. All these are presented in a capsule form since a life-size portrayal would require, as the author says in the preface, several "tonnes" (tomes?). Some selections from oral literature are given in the appendix, which is described in the blurb as "a spend section" (?). As it is, the book can be useful as an introduction of Rajasthan to the people in other parts of the country and thereby serve the cause of national integration. However this cause could have been served better if the book had also dealt with Rajasthan's role in the freedom struggle and its subsequent progress under the Five Year Plans. The "States of the Union Series" of the Publications Division is better in this respect.

P. S.

Public Cement Vs Private Cement

Cement Industry—An Inter-Sectoral Appraisal. Published by the Birla Institute of Scientific Research, Economic Research Division, New Delhi. Pages 50. Price Rs. 15.

CEMENT is one of the important ingredients of construction activity. The book tries to find out the relative performance of private and public companies in the cement industry. For this purpose, six public sector companies out of the ten and 33 out of 47 private companies have been selected. The study concerns itself with the five year period 1973-74 to 1977-78. The entire study is presented in five chapters and seven annexures. Great care has been shown while comparing the performance because of variations in many aspects from company to company with regard to accounting years, completely different capital structures, etc.

Some of the conclusions arrived at make interesting reading. Private sector employed Rs 130 per tonne of installed capacity and it went down to Rs. 122 in 1977-78. But there was only marginal growth in the sector during the period. The public sector employed Rs. 313 per tonne of installed capacity and the figure went upto Rs. 446 by 1977-78. Considerable addition to public sector installed capacity in the period has been observed. Salary and wages per tonne of production was Rs. 25.45 in the private sector in 1973-74 and Rs. 30.55 in 1977-78 whereas the corresponding figures for the public sector were Rs. 32.52 and Rs. 37.65 respectively. In other words public sector cement companies employ more people than necessary and rate of utilisation of capacity is poor.

Some such interesting facts have emerged from this study which is quite useful to those involved in the management of the industry.

R. R. RAO

Human Behaviour in Agricultural Sector

Psycho-social Dimensions of Agricultural Development by B. C. Muthayya and S. Vijayakumar. Published by National Institute of Rural Development, Rajendranagar, Hyderabad 500 030. First published 1980. Pages 103. Price Rs. 18.00.

THIS research study brings forward useful conclusions on the interesting issue of human and social dimensions of human behaviour in the agricultural sector of the country. The authors conducted the survey sometime in 1973 through collecting empirical data in districts where Intensive Agricultural Development Programme (IADP) was implemented in the States of Karnataka and Tamil Nadu. Comparison has been made with the position as it obtained in non-IADP districts.

It is true that no attempt had been made earlier to study systematically the impact of green revolution *vis-a-vis* agricultural development on psycho-social dimensions of one's behaviour. It was believed that economic changes would bring about changes in the social levels and attitudes of the people automatically from traditional to modern ways of living. It was not recognised that economic changes need not necessarily be accompained by social changes to the same extent in terms of improvements in the cognitive, affective and behavioural aspects. In fact, reports on agrarian tension in rural areas, particularly in the IADP districts of Kerala and Tamil Nadu, had revealed that the increasing economic disparities between the landowners and the labourers had led to social discontent of a magnitude which threatened the continuity and sustenance of agricultural growth itself.

In this study it has been found that while economic betterment did not have any influence on one's fatalistic attitude, it did bring increasing aspirations, though the variation in the IADP and non-IADP districts was not much in this respect. No significant variations have been found between the respondents in IADP and non-IADP districts revealing thereby that the traditional sttructures, the type of feelings and attitudes maintained by people cannot be changed or automatically taken to have changed due to an economic input. The implication of this finding is that along with economic development, it is necessary to conceive the type of social development that should follow so that each one will supplement the other and serve as a driving force for sustaining the benefits of economic development.

There is a feeling the benefits of green revolution did not percolate down the level of poor farmers. This is amply borne out in this study which says that whatever, socio-psychological changes were observed, they were more in the higher land-owning classes. Also, when irrigation is equalised as a major input for agricultural development, the variations resulting from other factors get reduced to a great extent. Thus the study makes useful observations for being taken note of by our economic planners.

Navin Chandra Joshi

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davp 81/15

Breast Milk Best for Babies

R. R. Rao*

MOTHER'S MILK is the cheapest, best and the most nutritious food for the baby. Don't be carried away by the pedagogic, subtly cast in all superlatives, claims of the baby food manufacturers. Breast milk immunises the baby against diseases, tunes the chords of love and affection between the mother and the child and builds up physical and mental faculties of the offspring.

The Consumer Guidance Society of Indian (CGSI), International Organisation of Consumers Union and Indian Federation of Consumer organisations, took pains, at a press conference arranged in New Delhi recently, to substantiate the superiority of breast milk over bottle milk, with the help of medical provings, clinical observations and field studies.

In India also, most of the urban mothers, says Dr. R. K. Anand, Chairman of the CGSI medical panel, have switched on to the bottle feeding and the baby food has crept into the countryside to some extent.

Breast feeding has many advantages. A baby fed on mother's milk does not require any multi-vitamin drops. The milk enables the baby withstand intestinal infection, allergies, asthma, and eczma which are known among bottle fed babies. Even if we take the economic aspect into consideration, a mother needs extra nourishment worth Rs. 21 a month on an average whereas for artificial milk she has to spend every month about Rs. 80 on milk powder, Rs. 108 on Amulspray, Rs. 120 on Lactogen, or Rs. 138 on Lactodex.

Every mother can secrete enough milk to feed the baby. Breast feeding trims the body of the mother, sheds the extra fat in the form of milk and improves the figure of the lady. Above all the immense joy the mother and baby get is something to be felt and is beyond words No problem even for working women. Before going out, collect the breast milk in a bottle and later somebody else can feed the baby, with the milk after slightly warming it up.

Breast feeding postpones the ovulation and results in automatic spacing of children. If they want, the mothers may use any other contraceptive but not the pill which suppresses milk secretion. The infant mortality rate in Kerala is half that of the nation because of many reasons, one of them being breast feeding.

In a study conducted last year, about 200 babies attended the OPD at the Nair Charitable Hospital Bombay. About half of them were being given artificial milk. About 80 per cent of the families had an income less than Rs. 150, and about 100 mothers were illiterate. Of them 13 per cent had continuous water supply. Further it was found out that most of the mothers were not aware of proper sterilisation of the bottle and proper dilution of the artificial milk. Out of the above 200, 13 children died and they were fed on bottle milk. In 1976, out of 100 diarrhoea cases, 12 children died and they were not breast fed. Between 1971 and 1976, 1690 children died of diarrhoea caused by artificial feeding.

About one million infant deaths can be averted by promoting breast feeding all over the world. About 10 million babies suffer from diseases caused by bottle feeding in the world, claim paediatricians.

The attempt of the WHO, with the help of health experts, governmental and non-governmental organisations, to evolve an international code of marketing for breast milk substitutes, is being vehemently opposed by the International Council of Infant Food Industries (ICIFI) formed by 15 companies controlling 85 per cent $ 2 billion baby food market. ☐

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*Our Correspondent.

Pisciculture in Machilipatnam

P. Ramalingaiah

Tiger prawns of Machilipatnam

IN Andhra Pradesh a large number of fish tanks spread over an area of 120 acres have been dug around Machilipatnam to breed fish and prawns Fed partly by the tidal backwaters and partly by fresh waters of irrigation channels, these tanks provide suitable conditions for composite culture of tiger prawns and fish. The per acre yield of fish is 1,000 Kg. and that of prawns 60-70 Kg. with the total income of Rs. 10,000. Financial help, seed and technical knowhow for pisciculture are being provided by the Fisheries Department. Andhra Bank also extends financial help to those engaged in fish farming. ☐

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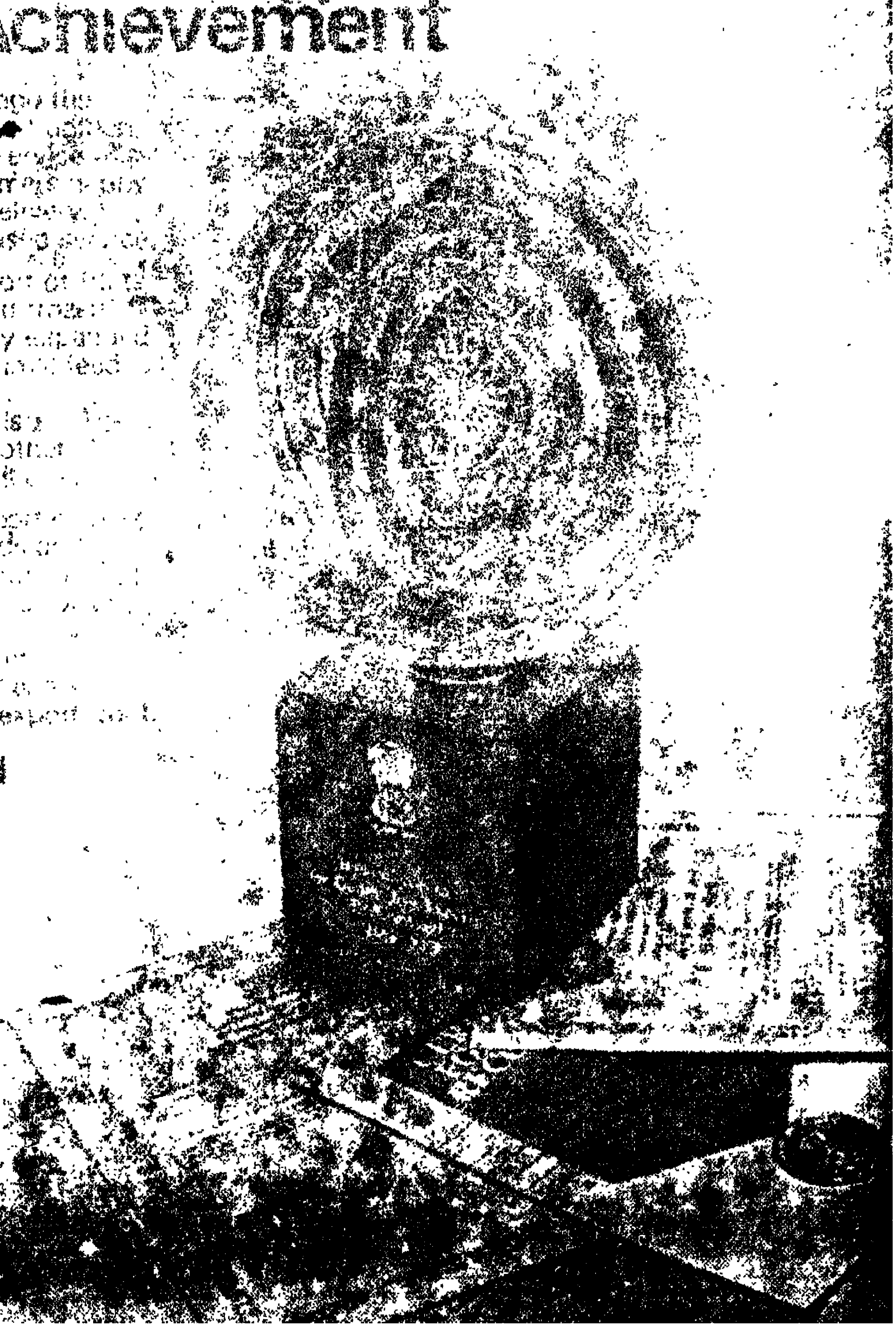

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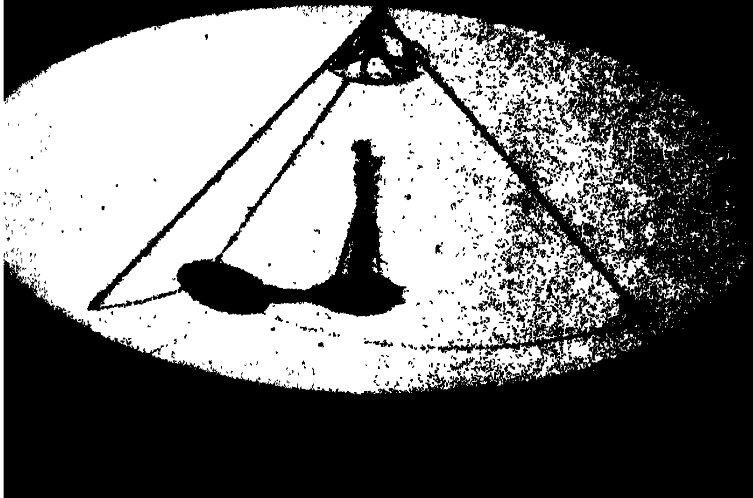

Coconut Development Corporation

C. S. Pillai*

IN Kerala three lakh tonnes of copra (dried coconut kernel) is produced annually. About half of this is sent to monopoly mills in Bombay where coconut oil and other product are manufactured. In October 1975 the Kerala State Coconut Development Corporation was formed to free the coconut farmers from the clutches of these monopoly mills and other middlemen. Some concrete steps have already been taken by the Corporation for the development of the copra industry. The Chairman of the Corporation Shri K. P. Aravindakshan revealed that some package programmes are also being taken up.

The first Coconut Oil Processing Unit under the Corporation was opened in Mamom near Attingal in Trivandrum District in April 1980. The Unit has a crushing capacity of 60 tonnes of copra (4.5 lakh coconuts) per day. There are 100 workers in the unit which has a capital investment of Rs. 1.60 lakhs. Its capacity has not yet been fully utilised.

The second coconut oil processing unit with the same production capacity is being established in Quilandy Taluk of Kozhikode District.

The feasibility of establishing farmers' co-operative societies and buying copra through them is also being considered by the Corporation. Government-level discussions on this line are going on. Copra required by Mamom Unit is now purchased through the local depot and a depot at Chunkom in Alleppey District. Copra is purchased through Kerala State Marketing Federation also.

Activities of the Corporation are also being expanded to fields other than oil production. Coconut cakes expelled from ordinary mills contain a minimum of seven per cent oil. One of the programmes of the Corporation is to instal a Solvent Extract Plant which can extract maximum oil from copra. The other project is to remove moisture from the scraped kermel and export it to various consumer countries. Nutritious coconut water is not utilized now. There is a project under consideration to market coconut water in bottles. Activated carbon fuel can be made from coconut shell. A project report prepared by the National Chemical Laboratory at Poona is also being studied by the Corporation to see the feasibility of producing sugar from coconut shell.

King Coconut of Andaman and Nicobar Islands

The two units at Mamom and Quilandy utilising their capacity fully, can process 36,000 tonnes of copra only. There is possibility of starting more oil processing units under the Corporation in Kerala.

The oil processed in the units of the Corporation is sold in the markets of Bombay and Calcutta. Last year Corporation had opened an oil sales counter in Trivandrum to which consumers responded well. Due to some unforeseen reasons, the counter has been closed after some time. Now the Corporation has a plan to market oil in plastic containers. ☐

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*Our correspondent and Editor, Yojana (Malayalam), Trivandrum.

Poultry for Prosperity

P.R. Chaudhury

UNDER the Special Animal Husbandry Programme, 50 poultry units, each consisting of 100 layers under Deep Litters system, have been set up at Gopalpur village of Nadia district, West Bengal, for the benefit of agricultural labourers, marginal farmers and small farmers. All the 50 farmers have been brought into the fold of a cooperative society.

All the chicks have been vaccinated by the veterinary staff and kept in pucca sheds. Poultry feed produced at Kalyani Feed Mixing Plant and supplied by West Bengal Dairy & Poultry Development Corporation Ltd. is given to the birds.

Before the units were started the concerned farmers were given a short training course in poultry keeping by the Animal Husbandry Department of the State. The capital cost per 100-layer unit is Rs. 3,400 and running cost upto 26 weeks comes to Rs. 2,195.

Till November 1980, there were 4,569 poultry units, each consisting of 50-100 layers under the Deep Litter System in the district of 24-Parganas, Hooghly and Nadia in West Bengal.

The Scheme is subsidised by the State Government upto Rs. 1898 and the rest of the amount has come from the Allahabad Bank, as loan. The loan is repayable in five years. The bank loan has been utilised for the construction of poultry sheds, purchase of day-old chicks, equipment and feed. The villagers who were once poverty stricken are now well off earning about Rs. 250 a month each, more than their usual income.

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Editorial

Plan Outlays and Resources

THE NATIONAL ECONOMY which started recovering during the first year of the sixth Plan has entered the path of growth during the second year. Even though the present rabi harvest has been somewhat lower than what was expected, the timely onset of monsoons assures good kharif production. The progress in the industrial field is even more spectacular—the growth rate this year is likely to be more than double that of last year. There has been considerable improvement in the production of infrastructure items which has enabled higher growth in other fields of the economy.

Doubt has, however, arisen about the ability of the economy to improve or even maintain this growth trend. The present improvement is mainly due to the better utilisation of the existing capacities and only new investments for increasing the capacities can ensure sustained growth. Further, the continuing inflation and price rise are adversely affecting all branches of the economy besides eroding the real value of the Plan outlays and necessitating more allocations for non-developmental expenditure like additional dearness allowance. From January 1980 to May 1981 the wholesale prices have risen by about 24 per cent. If this trend continues all the calculations about planning will be offset. Apart from shortage of goods, the main cause for the rising prices is the increase in money supply. The Plan provided for a deficit financing of Rs. 5000 crores for the entire five-year period, but it is estimated that in the very first two years the deficit financing might be of the order of Rs. 3500 crores. The country is eagerly awaiting the promised measures of the Finance Minister to curb black money and price rise.

Regarding mobilisation of additional resources for the Plan, the Centre has by and large done its part well while the States are lagging behind. The expected contribution of surplus from the public sector has also not materialised so far. While foreign aid prospects are good, the preparation of suitable projects for utilisation of that aid has not been prompt. The unexpected increase in population, as revealed by the latest Census, poses another big problem to the planners and the Government.

There is one major factor of consolation amidst these uncertainties, that is, both the Planning Commission and the Government are conscious of the problems and they initiate remedial measures without any delay. The improvement in the performance of the infrastructure was due to such watchful action of the Government. Similarly, the Minister for Planning sent a circular letter to the Chief Ministers last month requesting them to conduct periodic reviews so as to avoid deviation from the planned outlays and targets. A full meeting of the Planning Commission is to be held later this month to consider sectoral readjustments in the plan outlays and other problems. Given the political will it will not be impossibe to solve the problems affecting the planned development of the country. □

Need for Health Revolution in Developing Countries

Indira Gandhi*

LIFE is not mere living but living in health. The health of the individual as of nations is of primary concern to us all. Health is not the absence of illness but a glowing vitality, a feeling of wholeness with a capacity for continuous intellectual and spiritual growth. What is our ultimate goal? Is it the mere accretion of medical and other knowledge, the building of better machines and even hospitals, or are all these meant for a higher purpose, to make man better and more capable of handling the emotional and other stresses posed by material progress, increasing pace, and the lack of privacy in contemporary living? In India even in very ancient times it was believed that physical, mental and spiritual health are intrinsically interwoven. This is the basis of the science of yoga. The medical system perfected in India, Ayurveda, or the Knowledge of the Span of Life, in many ways foreshadowed W.H.O.'s own definition of health as "a state of complete physical, mental and social well being".

Dr. Mahler and his colleagues deserve congratulations and encouragement on their vision of "Health for All by the Year 2000". This envisages strengthening of public health programmes of developing countries, where most diseases are concomitants of economic backwardness.

Exit Old Diseases, Enter New Ones

Yet it should not be imagined that affluent countries have no health problems. They already experience the tensions, mental and physical, to which the dwellers of densely populated cities succumb. So that while the old diseases are being wiped out, new ailments are making themselves felt. New industrial processes must share the blame for this. Also, men and women seem willing to risk illness by over-indulgence in eating, smoking or drinking rather than practising the self-restraint so essential to health. In affluent countries medical treatment has become so exceedingly costly that they too need health insurance and assistance. Pychiatric treatment is prohibitive.

It is pertinent to recall that until a century and a half ago, the death rates and the general prevalence of disease were roughly the same in all countries. The scientific discoveries of the nineteenth century enabled Europe to cut down the death rate. This period also coincided with rapid economic growth in those lands. In Africa and Asia, however, the death rate is declining because of new miracle drugs and campaigns against epidemics. Once it is recognised that better health is not a mere offshoot of overall economic development, and that major improvements in health are possible in the absence of industrialisation, it follows that the patterns of public health and health administration of advanced countries are not necessarily appropriate for developing ones. The vast increases in population in developing countries are the outcome of successful public health programmes, but they constitute a further challenge to science, to governments and to mankind.

The vast increases in population in developing countries are the outcome of successful public health programmes, but they constitute a further challenge to science, to governments and to mankind.

Vulnerability to Epidemics

Long before modern communications, and economic forces proclaimed the interdependence of the world, epidemics had demonstrated that humanity is one in its vulnerability. Smallpox has been the latest of the epidemics to be eradicated, and an estimated billion dollars have been saved by giving up compulsory vaccination. But is it being used to assist other developmental work on health? In fact the story of international assistance tells that development does not command the enthusiasm that defence does. In India, 94 per cent of resources for development are mobilised domestically. Only six per cent comes as aid, but it is much needed as a catalyst of change.

We are told that we are on the threshold of a new age of biology. Major discoveries are promised in cell biology, genetics and immunology. Developing countries hope that these will enable them to overcome many of the old tropical diseases—particularly those connected with malnutrition, diarrhoeal disorders and communicable diseases. W.H.O. has a commendable programme of tropical medicine. Leaders of medicine all over the world should evolve a special project in this field as part of the "Health For All" schemes.

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*Address to the Thirty-Fourth World Health Assembly, Geneva, 6th May, 1981.

Priorities of Medical Research

May I say a few words about the priorities of medical research? Affluent societies are spending vast sums of money understandably on the search for new products and processes to alleviate suffering and to prolong life. In the process, drug manufacture has become a powerful industry, subject to the same driving considerations of other big industries, that is, concentration on profit, hence competition and recourse to hard-sell advertising. Medicines which may be of the utmost value to poorer countries can be bought by us only at exorbitant prices, since we are unable to have adequate independent bases of research and production. This apart, sometimes dangerous new dugs are tried out on populations of weaker countries although their use is prohibited within the countries of manufacture. It also happens that publicity makes us victims of habits and practices which are economically wasteful or wholly contrary to good health. You are all familiar with the controversy over the export of baby foods to developing countries.

> *My idea of a better ordered world is one in which medical discoveries would be free of patents and there would be no profiteering from life or death.*

We do need excellent modern hospitals. But the desire for ever larger hospitals, more often than not oriented towards high cost modern technological medicine, has to be resisted. Primary health care must be within reach, in terms of distance as well as money, of all people. The world has found to its dismay that resources are not unlimited. Hence waste of any kind and in any form, particularly in health and hospital care, should be strongly discouraged; and the countries' resources must be more equitably distributed. If this is true of the national scene it is even more so internationally.

Health Services at Door Steps

In India we should like health to go to homes instead of larger numbers gravitating towards centralised hospitals. Services must begin where people are and where problems arise. We have acquired the capability of placing satellites in orbit which give useful information, but we have not yet been able to reach out to all our rural people. However, we are engaged in reorganising our medical administration. Our outlook has been admirably expressed in one of the documents prepared by our doctors, which says, "Health is neither a commodity to be purchased nor a service to be given; it is a process of knowing, living, participating and being."

The disparities in levels of medical research and administration also affect us in another way. At great expense and effort we give our brightest young men and women medical education. But a large proportion of them are lured by the high salaries and tempting opportunities for further work which affluent countries offer. Thus we lose the skilled manpower so desperately needed to save our own people. Brain drain has been called the technical aid that developing countries give to the rich.

My idea of a better ordered world is one in which medical discoveries would be free of patents and there would be no profiteering from life or death. The world community should also work out some form of recompense for the loss suffered by developing countries because of this migration of trained doctors and nurses.

Health Revolution

A country's progress is generally judged in terms of its GNP. But surely the health of the people is also a significant yardstick. That is why we must stress the need for a health revolution in developing countries, not only to wipe out diseases and to make available specialised treatment, but what is equally essential, to provide basic health care and to take preventive measures. Education from the earliest stages must include certain elementary information about health, sanitation, cleanliness, the avoidance of contagious diseases and the preservation of the environment which is closely linked to these.

The world, and we in the developing countries, are beset with many health problems. But at this point I should like to take up three specific items. My country has participated successfully in the malaria and smallpox eradication programmes. But the cunning and urge for survival of the ubiquitous mosquito has outwitted us, and has proved stronger than we had realised, and he or rather she, for I am told that the female is far more deadly, has returned to disturb our sleep. Such focusing on special diseases and making all-out efforts to end them is a rewarding exercise.

I wish we could do the same for leprosy which is such a dread disease but now well within the powers of contemporary medicine to control. I pay tribute to the dedicated persons who, in my country and elsewhere, have devoted their entire lives to this demanding work. Obviously, such voluntary work can have only limited reach. Leprosy is prevalent in some 53 countries. If this problem is not scientifically and vigorously attacked right now, it will spread and be with us for long. The time has come to utilise better health education, better health technology and immunological advances to launch a global campaign to eradicate leprosy from the earth within the next twenty years. A major obstacle is the general public's ignorance and superstition regarding leprosy. People tend to evade investigation and hesitate to admit to the disease at the early stages when a cure could be complete and easier. This sense of shame is outdated and dangerous.

The second is blindness. It is said that at least 15 per cent is preventable by the addition of greens in early childhood diet and by simple treatment. W.H.O. could devise a special international programme with emphasis on safeguarding children from blindess, just as this year it has drawn attention to the problems of the disabled.

Population Control

The third, though by no means less important, is the question of population control. India is among the very few developing countries, if not the only one, in which the increase in the production of grain is larger than the increase in people. But the hard, cold fact remains that today men and women need a more varied diet and want much more besides food. At the rate at which we are growing, it will be increasingly difficult to match the demand for consumer and other goods and even for living space.

The Government of India was one of the first to take up family planning as a part of its official policy. Our aim is not merely to curb the growth of population but to have happier and healthier families which, in our circumstances, means smaller families. We are disturbed that our recent census shows an alarming increase. It is small satisfaction to know that some of this is due to people living longer and not to a higher birth rate. In fact our family planning programmes are estimated to have prevented 29 million births in the last decade.

Baseless Propaganda Causes Harm

Because there has been such wrong reporting and an entirely erroneous picture given of our policy, I should like to clarify that we neither believe in nor have we practised forcible sterilization as a matter of policy. We did emphasize what was called "motivation", that is persuading people to participate in this programme; operations were conducted by competent and authorised medical personnel. In this, due to mistaken over-zealousness or other mischief, there were some cases, but the margin was no larger than in other cases of medical or other error. What did incalculable harm was the baseless propaganda which some interested parties and individuals unleashed about our family planning schemes, and the political use that was made of it by gross exaggeration and even falsehood.

I shall give two instances to illustrate my point. At that time, some groups started an insidious and mischievous whispering campaign that we planned to sterilise the entire population. In the wake of a flash flood in Patna where the drinking water had become contaminated, people resisted the team of doctors who had gone to inoculate them against cholera. Some months later, our desire to give protection against diphtheria, tetanus and whooping cough to children who went to municipal school was thwarted because the parents were misled into thinking that the children were being sterilised.

Breakthrough in FP Programmes

By and large, women even in rural areas do want family planning. Our people are beginning to understand that children have certain needs and are not merely hands to help the family. However, controlled families are possible only if parents are reasonably assured of good health facilities for the survival of their children. As yet no inexpensive and effective remedy is available. Our scientists are working on this and claim that they are on the brink of major discoveries.

I should like to take advantage of my presence at W.H.O. to stress the need for a new dynamic and better coordinated programme of research in contraception. Family planning programmes are awaiting a big breakthrough. Without a safe, preferably oral, drug which women and men can take, no amount of government commitment and political determination will avail.

Life is and perhaps always will be a struggle, although the nature of it keeps changing. To meet it we need vision, faith, courage and dogged perseverance. These are the qualities I admire in individuals and in organisations. These are the characteristics of the role of the W.H.O. That is why I have come all this way to express our appreciation of its work, and to assure it of my Government's support. ☐

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Latest Trends in Leather Technology

Dr. S. Santhappa*

INDIAN Leather industry has to face many a challenge in the 1980s. The leather scientists, technologists and tanners are probing into alternative technologies, to avoid the use of chemicals which pollute the environment and to save energy. In the tanners' get-together "Challenges of the 1980's for the Leather and Allied Industries" held recently at Central Leather Research Institute, Madras, all aspects of research on leather industry were discussed. The Research Programme of the CLRI is formulated on the basis of the discussions. The scientists and technologists of the institute and its Regional Centres at Jullundur, Bombay, Rajkot, Kanpur and Calcutta have been striving to achieve the goals of the research programme.

In the field of tannery, pollution control measures like the conservation of water, avoiding or reducing the use of polluting chemicals, employing alternate non-polluting chemicals and elimination of common salt in the preservation of raw hides and skins are being adopted. The CLRI has succeeded in effecting economy of water upto 50 per cent and thereby reduction of pollutants in the tannery effluents. Consequently considerable amounts of processing chiemicals have been saved. Partial substitution of chrome with aluminium, gluteraldehyde and acrylic syntans has diminished the content of chrome by 90 per cent in the effluents. In one or two processes chrome has been completely eliminated.

In the beam-house processes, liming operation results in a large amount of sludge. Effluent from lime yard contains a high degree of alkalinity and toxicity. Pollution of the environment has been reduced to a great extent by adopting the new process developed in the CLRI. The new process envisages the treatment of re-hydrated hides and skins with ammonium salts, urea and caustic soda followed by dehairing system. The hair is removed the very next day and the hides and skins are treated with alkali to get the required plumping. The chemicals used in this process do not produce sludge nor are they harmful for the workers in the beam-house. Vegetable tannins and aluminium salts do not pollute so much as chrome salts, and even in re-chroming of E.I., it is proved that aluminium salts are giving very good results. Bag tanned leather can be retanned with alum and finished into marketable upholstery leather. The split is made into upper leather. In the leather finishing, transfer film has been used in the place of pigments and resin binders, with the advantage of freedom from pollution. Shanthiniketan type leathers have been made by spraying vegetable tanned goat skin with suitable binder followed by screen printing of designs and fixing with HCHO. Purses made of this leather are attractive.

In the field of tannery, pollution control measures like the conservation of water, avoiding or reducing the use of polluting chemicals, employing alternate non-polluting chemicals and elimination of common salt, are being adopted.

Use of enzymes for unhairing has helped to eliminate sodium sulphide which is highly toxic to aquatic flora and fauna. Likewise development of water-based finishes, instead of solvent systems has helped in cutting down atmospheric pollution. Among all the chemicals used in the industry, common salt is the major culprit causing ground water pollution. Technologies have been developed in the CLRI with a view to minimise its use and even to completely avoid, if possible. The CLRI has undertaken a programme to utilise solar energy for heating water for tannery use and also drying of leathers.

Bag tanned leather

In Jullundur (Punjab) a co-operative system for helping the rural bag tanners was suggested by the CLRI. Under this, it was proposed to create a central agency or an industrial co-operative which will provide for the inputs and purchases of leathers produced by the tanners at fair prices. The agency will provide facilities for retaining and finishing as well as fabricating the leathers into consumer articles, such as sportsgoods, ladies bags etc. An experimental trial was made in a local tannery by the Regional Extension Centre of the CLRI at Jullundur and the practicability of the scheme had been verified. The leather goods were fabricated at the local units as

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*Director, Central Leather Research Institute, Madras.

Leathers having many grain defects are printed or embossed with suitable designs.

also sports good like rugby ball and wicket-keeper's gloves by the respective manufactures; the splits obtained were sold to the country shoe manufacturers and the trimmings to village cobblers for repaid work.

Usually the low grade hides and skins having grain and other defects, are converted either into grain or suede lining. Leathers having too many grain defects are printed or embossed with suitable designs like those of crocodile, elephant, porcine and similar grain patterns. Other techniques include screen/block printing and tie and dye methods for producing various patterns both on the grain and suede sides.

But the "Novotone Technique", developed by the CLRI, involves printing of various designs and patterns on the grain side of the leather using half-tone blocks. The main advantage of this technique is that no elaborate equipment or machinery is required and the pattern can be printed on cut panels or components by the leather goods maker himself; the investment on equipments is very little and therefore, this technique is ideally suited for cottage and rural leather goods manufacturing units. This technique has been award Rs. 3,000 by the National Research Development Corporation, Government of India recently.

Processes for the manufacture of chrome/zirconium combination tanned and zirconium tanned cricket and hockey ball leathers have been developed in the CLRI. The leathers thus obtained have greater scuff resistance, better dyeing characteristics, longer life, better shape retention and also are more resistant to water.

The export oriented Indian Football Leather Industry demands a leather without any residual stretch. It is found that most of the leathers being used presently, go out of shape either during their manufacture or after their use in one or two games. Bag tanned leather which is supposed to have the least amount of stretch has quite a few serious drawbacks associated with its crude methods of production being adopted in rural conditions. Keeping this point in view and especially the stretch, a process has been developed wherein the middle portion of the leather is left untanned. This portion is expected to absorb the impact from the kick given to the ball and retain its shape. It has been found that by retanning the central untanned portion of the vegetable tanned leathers with chrome or slum in low percentages, satisfactory leathers for football could be manufactured.

Fundamental Aspects of Leather Research

Many antiseptic formulations for use in curing and preservation have been tried with goat skins. By using (i) bronidiol + sodium pentachlorophenate, (ii) ZnSo4 + salt (less than conventional amount) the skins were preserved for more than 35 days without hair slip. Bronidiol 0.5 per cent+Benzalkonium Chloride 2·5 per cent has been found useful to preserve for one month without addition of salt.

Certain indigenous tanning materials of our country were studied for their nature of tannins as well as non-tannins. Such studies on Kahua (Terminalia arjuna) indicated that the bark tannins belong to condensed type and are based on (+)-catechin, (—)-epi catechin, (+)-gallocatechine, (—)-epi gallocatechin, whereas the fruit tannins belong to hydrolysable type from which puniculagin was identified. Loranthus, longiflorus, a parasite plant growing on mango was found to contain tannins to the extent of 10 per cent which are based on (+)-catechin and leucocyanidins.

A synthetic tannin was prepared using the tannins from de-oiled sal seeds. The syntan gave good results as a retanning agent for the manufacture of chrome retanned upper leathers. Preliminary studies on the improvement of Ghat-bor tannins by addition of syntans and chemical modification, where they are used as the raw material for the manufacture of syntans, gave encouraging results in improving the colour and rectifying other defects.

> *The "Novotone Technique" of finishing, developed by the CLRI, involves printing of various designs and patterns on the grain side of leather using half tone blocks*

It is well known that raw hide/skin is used for making musical instruments. Research has been undertaken in the CLRI to study the sound characteristics of animal hides and skins in relation to their structure, for use in musical instruments. Normal modes of vibration were studied with sun dried buff calf, cow calf, goat and sheep skin membranes in correlation with histological features of the skin. Though there is no significant variation in the fundamental frequency, the stiffness of the membranes which influences damping characteristics varies significantly The stiffness increases as the compactness and the length of the fibre bundle increases. Effect of processing on the fundamental frequency and stiffness of the goat skin membranes subjected to (i) sun drying or (ii) liming, deliming and acetone dehydration ; and (iii) vegetable tanning were studied. The vegetable tanned skin has very low frequency and stiffness. Though the sun dried and limed, delimed and acetone dehydrated skins have the same frequency the sun dried skin has much higher stiffness.

Novel processes for bating and unhairing of hides and skins using immobilized pancreatic enzyme products were developed on the basis of our study on immobilization of proteolytic enzymes like trypsin and pepsin on sand by different methods.

Applied Research

Small quantities of fibrin prepared (in CLRI) were supplied to Madras Veterinary College and they were found to be acceptable in veterinary surgery for arresting bleeding. Hide fleshings were hydrolysed under different conditions and the hydrolysates were found to be useful as fillers for improving the properties of leathers and also as sizing agents in textile industry. Studies on the hydrolysis of hide trimmings have yielded good results for their suitability in preparation of detergent formulations. Large quantities of processed goat hair were supplied to the Jute Technological Research Laboratories, Calcutta for making non-woven bonded fabrics using a blend of goat hair, wool and jute. The fabric is useful as insulating material in high altitude shoes. Tannery hair and chrome shavings are digested separately and are being tried as nitrogenous manure for vegetative crops like cluster beans, ladies' finger etc. The uptake of chromium and its toxic effect in plants are also being investigated. Dog biscuits were prepared in the CLRI using nonhuman grade meat and other animal offals ; samples of the same have been sent to the CFTRI Mysore for their evaluation. Dog chews and other formulations of dog treats could be obtained from hide splits, hide trimmings and tripes.

An FAO/UNDP assisted project (for four years) was initiated in 1979 (April) in CLRI on "Processing of animal by-products for various end-uses". The immediate objectives of this project are—to develop processes and products through latest techniques making use of the largely available animal by-products in our country. It long rangs objectives are (i) modernisation of slaughter-houses in our country for setting up by-products processing units ; (ii) formulating and arranging training programmes for people in different categories ; (iii) demonstrations of some of the processes. The staff members under this project are being trained abroad and experts from other countries are assisting in this project. The following are some of the activities initiated in CLRI recently under this project : a) preparation of fire extinguishing foam compounds from hooves, horns and feathers of animals; (b) preparation of protein—feed supplement for poultry from feathers, hooves, horn of animals and also from chrome shavings; c) cosmetics—small peptides from purified skin collagen for shampoo making; soluble collagen, monomers and dimers for skin cream lotions; from calf or fetal pig skin invertebrates and lower vertebrates; soluble deamidated collagen from hides and skins; kertin hydrolysates for hair shampoo, naid polish etc., from horns, hooves, etc. (d) Prosthetic materials—collagen sheet for wound dressing from coliagenous tissues of animals; collagen tube in vessel prosthesis for the prevention of adhesion, perimural from collagenous tissues of animals; e) protein for human consumption —from frog carcass, shark waste, fish offals etc.

Water resistant sole leathers have been prepared by myrob and Al tannage and Iron-Al-Veg tannages and also by treatment with aluminium stearate followed by basic aluminium sulphate. Incorporation of tallow and oil also improves water resistance. Use of the five per cent solution of sodium sulphide has been found to give quick unhairing in sole leather making. Nappa and chamois splits were made from buff hide with a view to increase the value realised as finished leather.

Syntans

Improved syntans based on lignosulphonic acid and phenol for retanning purposes, Lignosulphonates as such and hydrolysed ligno-sulphonates, were reacted with polyphenols of myrobalan. It has been found that the hydrolysed material gave a better product for use as a self-tanning agent. Commercial myrobalan extracts containing excessive bisulphite have not been found to be satisfactory.

Tannery trials with syntan "RS" since developed in the CLRI have been found to give good results with certain modifications. Urese in "AH" another syntan, developed in CLRI has been found to be useful for retanning of chrome leather.

The mono and di-glycerides obtained from the marine and vegetable sources on reaction with mono-poly-carboxylic acids have shown promising results for both tanning and fatliquoring purposes. During preparation of fatliquor styled as CENFAT, obtainable from vegetable/marine/animal amine based and chrome, it has been found that substituting chrome powder with chrome alum gives better results. A collaborative project between the CLRI and a public undertaking firm of Calcutta has been initiated recently for preparation of synthetic fatliquors using the CLRI technology.

A number of pigment dispersions have been screened for properties like heat and migration resistance. light fastness etc. Various organic and inorganic pigments were blended as pigment dispersion formulations and their properties namely hiding power, particles size, colour value and also dispersibility were studied. These blends are being compared with commercial ones existing in the market.

A fabric, made of goat hair, wool, and jute is found quite useful as insulating material in high altitude shoes.

Recent research investigations in polymer area are concerned with development of tanning aids, finishes and various leather auxiliaries based on polymers. Acrylic copolymers based on MA-MMA-ACN (CLRI brands) were prepared in emulsion form for use as base coat for leather acrylic binder (RS). The process was perfected and the know-how has been released to a number of chemical firms for commercial exploitation. Polyurethane lacquer based on TDI castor oil was also released to chemical firms in Bombay and Delhi. A know-how for the preparation of modified case in finishes, developed in CLRI, has been handed over to the NRDC for release for commercial exploitation. A series of adhesives based on VC-VAC-copolymers (CLRI) and polyurethanes have been made and are being assessed for their use in footwear manufacture. With a view to investigate and also explore out-lets for utilisation of industrial polymeric materials, based on agricultural and industrial by-products, for incorporation into hides and skins and others, Mica-Vinyl graft copolymers, and lignosulphonate-vinyl graft copolymers have been made and used in leather manufacture. The leather treated with these grafted products showed improved properties like fullness, softness and nap as compared to the untreated product. Preliminary investigations for preparation of antithrombogenic surfaces based on collagen for use in biomedical field have been completed. An inter-institutional project sponsored by the Department of Science and Technology (DST) has beene undertaken for the preparation of phenolic resins based on non-petroleum products. Good progress has been made in the preparation of resin from the hydrolysate of myrobalan tannin extract. An International Symposium on Polymers was held during January 1980, at Madras, by CLRI, in which experts from all over the world participated.

A number of new designs for handbags with and without frames, pouch bags, leather album and light weight softy brief cases have been developed. Leather goods like wallets, handbags, writing cases etc. have been made with 'Novotone' leather. Novel and useful designs for wall hangers have been made out of inferior or rejection quality leathers. Newer uses have been found for bag tanned leathers from rural areas for making travel bags. conductor bags etc. Certain accessories for straight edge folding machine and universal press have been developed. A plywood bending machine for suit cases has been fabricated.

Studies on biophysical aspects of normal and abnormal feet and its relationship with footwear have been studied. In electromyographic studies conducted during surveys to evaluate the behaviour of the leg and foot both in static and moving phases, it has been found that while the foot is flexed at the ankle and also when extending the toes at the metatarsophalangeal joint, both in standing and sitting postures, muscles are more active during flexion in weight-bearing posture than in sitting. Similar results have been obtained in the case of calfmuscles as well.

Kinematic analysis of locomotion of children while walking barefoot was conducted using cinematographic technique. Eight normal persons, a flat-footed person, a person with knock-knee were chosen for this study. The displacement patterns for various leg markers affixed at different joints of leg, knee, ankle and metatarsophalangeal joints were traced. The displacement information thus obtained was fed to the computer for the computation of velocity and acceleration data for further analysis. Studies are in progress on the structure and properties of footwear materials with the object of making improvements in footwear.

A 1800 mm splitting machine has been fabricated for leather industrial organisation in Vijayawada. This was demonstrated to the public in the TGT-1981. Strap cutting machine, skiving machine, hydraulic clicking press and vacuum dryer are in the process of fabrication. Design drawings for 400 mm, splitting machine have been completed. In co-ordination with CMERI, Durgapur-Madras Unit (MERADO), CEERI, Pilani-Madras Unit, the CLRI has taken up development of a rotary spraying and drying machine. A pneumatic blade fixing device for cylinders of fleshing shaving, sammying and setting machines is being developed in CLRI.

An International Seminar on Transfer of Technology in Leather and Allied Industries sponsored by the ESCAP was organised by the CLRI during Jan.-Feb. 1980 at Madras, in which delegates from the ESCAP countries, UNIDO, FAO, ILO etc. as well as from all over India participated. □

Telecommunication Services in India :

A Review and Perspective

Vijay Naval Patil*

UNDER the Sixth Five Year Plan the Ministry of Communications is aiming at a substantial overall expansion and improvement of public telecommunication services.

As is well known, telecommunication is a vital link among people of different strata for the economic development of a nation. In the words of our beloved Prime Minister Shrimati Indira Gandhi "Communication in today's world plays an important role. Without it neither democracy can function nor can progress be made."

Substitute for Transport

Telecommunication is in several respects a substitute for transport. Most other means of communication involve movement through public or private transportation and therefore require use of considerable amount of resources more so in recent years in view of escalating energy costs. Telecommunication services offer a significant low-cost alternative to the user as well as permit saving on energy consumption. This is of particular importance for a large and energy starved country like India.

Owing to various constraints the investments in the telecommunication sector in the past have not been adequate with the result that the level of telecommunication services has fallen short of the needs of the economy. A higher priority to this sector is justified considering its infrastructural character and potential contribution which can be made to economic growth.

Objectives

It has been our main objective to overcome the chronic conditions of shortage and congestion in our telecommunications network since world war II. In the assessment of the telecommunication administration the following targets are capable of achievement by the end of the current decade (1980--90).

Electronic Telephone Exchange.

(i) Provision of telephone and telex connections practically on demand;

(ii) Full automation of the local telephone exchange networks;

(iii) Replacement of all old exchanges and other equipment ;

(iv) Provision of subscriber dialling facilities on an integrated STD Trunk network among all cities and towns with a population of 50,000 or more.

(v) Provision of subscriber's dialling facilities between all telephone exchanges within a secondary switching area with boundaries of one or two revenue districts;

(vi) For calls outside the secondary area not covered by (iv) above provision of no delay manual trunk service; and

(vii) Extension of telephone service either through a telephone exchange or long distance public telephone to within 5 kms. of most inhabited locations in the country.

While developing the telecommunication network to meet the above objectives it will also be necessary to take into account facilities for such main users as AIR, Doordarshan, Defence, Irrigation, State Electricity Boards, ISRO, NTPC, IAC, Air India, Civil Aviation, IOC, ONGC and State Police Deparments.

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*Deputy Minister for Communications.

Rudimentary System

At the time of Independence, India had a rudimentary telecommunication system. A review of position obtaining on 1-4-1948 has revealed that the country had a total of only 321 telephone exchanges with a capacity of about one lakh lines, 82,000 working connections (DELS) served by a total of 426 long distance (inter-city) speech channels. There were only 338 long distance public call offices and 3324 public telegraph offices.

Growth of Telecommunication

After independence, the Parliament under the able leadership of late Panditji gave high priority to the revitalization of the economy. It discussed and framed many schemes for creating the necessary infrastructure for development of industry and improvement of agriculture. As these schemes got into swing and economic activities picked up, need for rapid and effective communcation facilities began to be felt. These needs were reflected in the increase of telegraph and telephone traffic.

The Government's schemes for socio-economic resurgence were given the shape of comprehensive National Plans with the formation of Planning Commission in 1950. The first five year Indian was launched in 1951 and has been followed by successive Plans. Based on demands for telecommunication services and the total availability of investable resources both in money and materials, considerable expansion and development, both quantitative and qualitive has been made in the field of telecommunication in the successive plans. The table given below summarises the development in this regard.

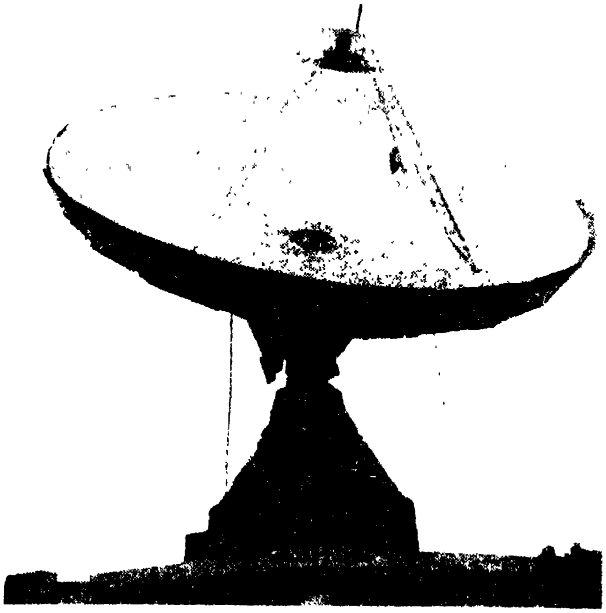
Qualitative Improvements

The basic telephone services have grown almost 24 times during the last 32 years—a remarkable achievement. Side by side there have been considerable qualitative and technological improvements. A few of these may be mentioned.

The local telephone service has been made automatic to a large extent. As on 31-3-80 only about 14.53 per cent of total exchange capacity was manual. This has hastened considerably the putting through of calls and eliminated the complaints of inattention by operators. The step by step system (Strowger) was a fore-runner of automatic switching in the country. The common control switching system was introduced in mid-sixties primarily to meet the demands of nationwide subscriber trunk dialling service. By eliminating the intervention of manual operators and enabling the subscriber to switch directly their long distance calls, the trunk service has been completely transformed. The subscribers have received the new service with great enthusiasm and we notice tremendous increases in trunk traffic revenue. In the last decade "Electronic switching system" has been developed the world over and accepted as the system of the future. The Indian P & T joined this breakthrough in October 1974 along with eleven other countries of the world and had its prototype in the TRC (Telecommunications Research Centre) at New Delhi. Another field trial of this type is being evaluated in the Rajouri Garden area of Delhi Telephone network. The P & T is also taking steps towards introduction of electronic switching for local trunk and telex exchanges in the current plan period.

Growth in Telecommunication Service

S.No.	Facility	Unit	Position on 1-4-1948	Position on 1-4-1980	No. of times growth since 1-4-1948 (b/a)
1.	Telephone Exchanges	Number	321	7430	23.15
2.	Local Exch. Capacity	Lakhs lines	1.00	23.36	23.36
3.	Working connection (DELS)	—do—	0.82	20.14	24.56
4.	Telephone sets	Lakhs	1.68	26.15	15.57
5.	L.D. PCO	Number	338	13830	40.92
6.	Manual Trunk boards	-do-	250	7106	28.42
7.	Trunk Automatic Exch.	-oo-	Nil	18	infinite
8.	TAX Capacity	-do-	Nil	40300	—do—
9.	STD routes (pt to pt)	-do-	Nil	137	—do—
10.	L.D. Speech channels	-do-	1426	59741	140.24
11.	Co-axial Cable system	Route km.	Nil	16641	infinite
12.	M/Wave system	—do—	Nil	16545	—do—
13.	Public Telegraph offices	Number	3324	24457	7.36
14.	Telex Exchange	-do-	Nil	136	infinite
15.	Telex Capacity	-do-	Nil	22015	—do—
16.	Telex subscribers connections	-do-	Nil	17983	—do—
17.	Voice Frequency Telegraph channels	-do-	450	17777	39.50
18.	Teleprinters	-do-	615	36982	60.13



Antenna of the Earth Station at Dehra Dun

There has been a continuous technological evolution in transmission techniques. In the earlier days open wire physical circuits were common modes of transmission of telegraph and telephone messages. The open wire circuits were replaced progressively by three channel, eight channel and 12 channel open wire carrier systems and 18 to 24 channel VFT systems. Till mid-1950's the trunk network in the country consisted almost entirely of open wire routes

Telecommunication is in several ways a substitute for transport. It offers a significant low-cost alternative to transport and helps reduce energy consumption.

By the end of 1950's the coaxial cable system was introduced in the country and it has ultimately provided the main back-bone routes between four metropolitan cities of the country. Initially capacity of the coaxial cable system was of 960 channels which was subsequently increased to 2700 channels per pair of tubes (copper) by the installation of 12 MHZ coaxial line equipment. 60 MHZ coaxial cables system catering to 10800 simultaneous telephone conversations has been introduced on an experimental basis between Bombay and Thana. Thus, the technological change has brought about change from Morse code transmission method for telegrams to teleprinter mode of transmission of messages and the improved quality speech in the carrier phone channels and ushering in the subscriber trunk dialing. The latest facilities provided through the VFT systems to the business houses has become more and more popular.

Rural Telecommunications

Trade and commerce, which has for long been concentrated in and around large cities, has of late begun to diversify and extend to rural areas. This diversification is regarded essential for generating new employment opportunities and there is greater realisation today about the need to render institutional and economic support to the small town and rural based communities. There is, therefore, need to penetrate deeper so as to bring villages closer atleast to district town centres through faster communication medium.

The rural telecom development would be a part of rural programmes as provision of a quick and efficient means of communication could provide the basic infrastructural support in monitoring the information and mobilisation of services for the massive employment oriented and other socio-economic development programmes. The developments in the field of electronics and digital communication that have taken place during the 1970's offer us the possibility of improving the rural networks by the application of this new technology. It is proposed to plan telecommunication networks taking advantages of this new technology for the 18 selected districts. These development plans are designed specifically to improve telecommunication facilities in rural, backward, hilly, tribal and scheduled areas which would definitely facilitate economic development of scheduled caste and scheduled tribes who constitute bulk of the population in these areas.

Development of telecommunication in rural areas could be a great boon to the farmer.

Providing long-distance public telephones through multi-access rural radio systems offers great advantages since the cost of providing long-distance public telephones is indepenedent of line lenth upto 50 kms. from the exchange base station and for the low traffic. Remote area communication is also planned through the satellite. The department also proposes to install 10 line electronic exchanges in villages. These will enable smaller villages to avail of efficient telecommunication facilities, where at present 25 line SAX could not be justified because of small number of subscribers. This is how the P & T Department proposes to give a rural orientation to the telecommunication network to stop the flow of rural population into urban areas and cities by helping to grow industries simultaneously in urban and rural areas giving opportunities of employment to village population in the fields of cottage industries, small scale industries and facilitate farmers to concentrate more on grow more food compaign.

New Services

As the economy of the country is getting transformed, modernized demands for new services are coming up. Thus, the Doordashan needs TV bearer channels, business houses and government agencies like Civil Aviation need data transmission facilities, newspapers and meteorological department telemetry facilities and so on. The department is making provision for these services and meeting the requirements in its successive Plans.

The basic telephone services have grown almost 24 times during the last 32 years—a remarkable achievement.

The Telecommunications Research Centre of the P & T Board is well set to meet the new challenge that is ahead of us. Technological changes at an ever-growing rate are forecast in the future. Integrated time division transmission and switching techniques are on the horizon. So are the optical fibre transmission techniques. Further thus holds out prospects of revolutionary and exciting adventures and challenges in the telecommunication technology in the service of the nation. ☐

Physical Planning in Tourism Development

C. S. Pillai*

A balance should be struck between conservation of cultural values and environmental aspects on the one hand and development of tourism on the other. It is necessary to make special efforts to involve, and educate, as well as provide for maximum possible economic benefits to the local community so that the adverse attitudes and tensions which are developed at a later stage would be avoided. Identification of the particular form of tourism or tourist product and image that any country desires to promote is essential. Otherwise the marketing and promotional efforts for tourism are not likely to be concerted and successful. Also the respective Governments should give much priority to the tourism industry in their National Plans.

These are some of the recommendations made at the five-day workshop on "physical Planning" conducted by the World Tourism Organisation at Kovalam in Kerala recently. While inaugurating the workshop, the Union Minister of Tourism and Civil Aviation, Shri A. P. Sharma, said that physical planning of tourism facilities was an important aspect of tourism development which needed serious examination and consideration. Tourism is a multifaceted discipline. If given full hope, it holds unlimited potential for making substantial contribution to the country's cultural, social and economic fields. Besides, it can foster better international understanding, forge national integration and correct regional imbalances, Shri Sharma added.

While creating the necessary infrastructure and facilities for tourists, the minister said we must ensure that there is no adverse impact on the local community. While undertaking the physical planning of a particular area—whether an archeological centre or a wild life sanctuary or a beach or mountain resort—we need to take particular care of the impact of tourism on the local community and on the environment of that area. Shri Sharma suggested that master plans should be prepared to determine and suitably locate the various facilities required. Suitable legislation, if necessary, should also be made part of physical planning of a centre, so that the master plan prepared and guidelines formulated were adhered to. The Minister announced that the Central Department of Tourism had prepared master plans or land use plans of about 18 tourist centres of national beauty and archeological interest.

Earlier, speaking to newsmen, the Union Minister said that India expected to receive 1.75 million tourists by the end of 1985 and double that figure by the end of 1990. He said that the country earned foreign exchange worth Rs. 500 crores from tourism in 1980. The amount may be Rs. 1,000 crores in 1981. Now that chartered air service had been permitted, a large influx of tourist could be expected, the Minister added. To begin with 30,000 youths will be coming from Germany and 20,000 from France.

The Workshop was attended, among others, by the Regional Secretary of the World Tourism Organisation, Shri J. M. Handi and the W.T.O. Consultant, Shri John Hawkes under the Chairmanship of Smt. A. Mehta, Additional Director General of Tourism, Government of India, New Delh ☐

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Economic Development of Nigeria

Navin Chandra Joshi*

AFTER remaining a colony under Britain the Federal Republic of Nigeria was granted internal self-government in 1951 when Nigerians took up all but a few of the ministerial portfolios. Complete independence was obtained on October 1, 1960 when it became sovereign and independent and a member of the Commonwealth. On January 15, 1966 the parliamentary government of the country was ended by a military coup and a second coup followed on July 29 the same year. In mid 1967 civil war erupted finally culminating in a yet another coup on July 29,1975 and yet another on February 13, 1976.

Nigerians gave to themselves a new Constitution on October 1, 1979 providing for an executive president. This marked the end of almost 14 years of military rule. General elections in the country were held in July/August 1979 and the present President Alhaji Shehu Shagari was elected. The second Republic brought with it the presidential form of government and the only constitution designed to hold in balance the tremendous tensions generated in the rapidly growing and changing Nigerian society of over 80 million people and over 250 ethnic groups. Today Nigeria is a federal republic comprising 19 states and a federal capital territory.

Nigeria is the second largest producer of cocoa in the word.

The country lies at the coast of West Africa. It has total land area of 923,768 square kilometres. It is the most populous country of the African continent. Nigeria's name is derived from the Niger river which enters the country from Western Africa.

While the population increase is at the rate of 1.5 cent, the per capita income is around $25 per annum. About 10 per cent of the total area of the country is under cultivation. The forests cover about 32 per cent of the total area. In the extreme north the country is almost desert with sparse population. There are a few mountains, and on the northern plateau there are peaks of over 5000ft. The Niger, Benue and Cross are the main rivers. The climate varies in different parts of the country though Nigeria lies within the tropics and temperatures are quite high. The country is bordered by Dahomey on the West, Niger on he north, Chad and Cameroon on the east and the Gulf of Guinea on the south. The Country's currency is Naira introduced since January 1, 1973 and prior to that it was the pound.

Economic Recovery

There is a general lack of major economic data on Nigeria. In the period imediately following the end of the civil war in January 1971, Nigeria made a remarkably rapid economic recovery. Assisted by a large and fast growing flow of financial resources from the petroleum sector, the Government accelerated reconstruction, removed economic distortions, and redressed the country's overall financial situation.

The real GDP at factor cost expanded on the average by about 18 per cent over the two years 1970-71 and 1971-72. The surge in the growth rate was, however, accompanied by a substantial increase in domestic prices and balance of payments pressures. While relative price stability was in 1972-73, the early post-war growth momentum was not sustained. The rate of increase of real GDP was 9.6 per cent in 1972-73 which fell to 7.0 per cent in 1973-74.

Predominance of Agriculture

Nigeria is an agricultural country where 80 per cent of its total working population is engaged in producing yams, cassava, plantains, rice, beans, sugar-cace and citrus fruits, cocoa, oil palm produce, groundnuts, rubber and cotton. There is a fairly high degree of specialisation in agricultural production. The bulk of Nigeria's cocoa is produced at the western end of the high forest region while palm is produced at the eastern end. The Nigerian system of agriculture is based on numerous small farms. About 55 per cent of all farms are smaller than 2.5 acres. Even for plan-

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tations, small holdings are the rule in Nigeria. Only 37 per cent of Nigeria's total land area is reasonably well developed for agriculture. With modern technology and inputs it is being raised to 79 per cent. Population pressures have now become serious in the rainforest belt as well as in the groundnut and cotton areas of the north. The middle savannah regions represent the largest under-populated and under-farmed area in Nigeria.

Agricultural operations are primarily oriented towards the domestic market. Recently the Government has launched a programme of Green Revolution. At present, food imports consist of wheat, sugar and milk to meet comestic demand. Nigeriais the second largest producer of cocoa in the world and the world's largest exporter of groundnuts. Climatic conditions are favourable in most of the areas and water resources are ample.

Land constitutes a major asset in Nigeria. All lands in the northern states are vested in the public authorities (usually local governments) but this is not the case in the southern states where customary land tenure system still operates. Under the latter, the land belongs to the corporate bodies in their capacities as property owning groups. The rights of the groups are considered far superior to those of individuals. Alienation of interests in land, particularly in return for cash payment, is prohibited under the customary land tenure system.

Population Density

Population density varies in the country from the sparsely or virtually uninhabited areas in the north and the middle belt to the densely populated parts of the eastern states. As against the country's average density of 156 persons per square mile, Lagos (the capital) has about 1,000 persons and density of 700 persons is common in Imo and Anambra states. One serious problem is to make available part of the 'surplus' land in the north to the other citizens from land-scarce areas of the country. The increasing rate of urbanisation entails the conversion of rural land to an urban use and with it an inevitable rise in the price of that land. Therefore, it is almost impossible to achieve effective planning without adequate control on the use and ownership of land. The regulation of land use is very inneffective in Nigeria. There is now a universal consensus that the overriding social function of land usage justifies the imposition of limitations on private rights.

Manufacturing Sector

Nigeriaa's manufacturing sector is characterised by a limited range of textiles, apparels, soft drinks, tobacco, simple metal products and some assembling, a fairly high dependence on protection, substantial geographical concentration, mainly in Lagos and three other large cities and a relatively high degree of private ownership, largely foreign. The ratio of manufacturing to GDP is around 8 per cent. Import substitution, spurred by fairly high market protection, has been an important factor in the expansion of the manufacturing sector in Nigeria. Nevertheless, the country's dependence on imports is still high, particularly for machinery, transport equipment and chemicals. Within the industrial sector larger enterprises have been growing fast while handicrafts have been expanding slowly although they provide good employment. The public sector has made substantial investments in the manufacturing industry but inadequate planning and administration have hampered the operation of many public enterprises.

It may be recalled that during the pre-independence era, industrial development in Nigeria was very slow. Over the last decade, however, industrial growth became a crucial factor in Nigeria's general economic development. The new burst of activities both in the petroleum and manufacturing sectors have come to constitute the major driving force in the development process. Today industry has moved from the periphery of the country's growth mechanism to a potentially dominant position as an important engine of economic transformation. Emphasis has shiftted from import substitution to the establishment of basic and intermediate industries. The Nigerian economy is now faced with the challenge and opportunity of creating an industrial base that can guarantee self-sustaining growth in the future. The country is well endowed with both mineral and human resources necessary for rapid industrial growth. There is a large and expanding domestic market which can provide the leverage for competition in the export market.

In order to harness the tremendous potential of the manufacturing sector and to realise the particular advantages which a dynamic private sector has in this area of economic activity, government has decided to further open the doors to both indigenous and foreign private investors in most sectors of manufacturing. Efforts are being directed towards the promotion and expansion of the intermediate and capital goods industries in order to raise the contribution of value added in the manufacturing sector. The private sector is banned only from investing in defence industries and from security printing. The Federal Government must have majority interest in basic petroleum industry such as crude mining, gas gathering, liquefaction, but not necessarily in downstream petrochemical industries. In other areas of manufacturing industry the Government, the private sector, and others are free to invest either in collaboration or exclusively, without prejudice to the Nigerian Enterprises Promotion Decree of 1972.

Foreign investment is encouraged in the areas of major earnings where 40 per cent or more of the output is meant for export, in engineering industries, basic industrial chemicals and agro-based industries. The government has promulgated the 'Nigerian Enterprises Promotion Decree in order to initiate practical participation by Nigerians in the industrial development of the country and to encourage foreign investors to move to those sectors which require more advanced technology. Under a decree of indigenization, Nigerians must have a minimum of 30 per cent shareholding in all foreign enterprises.

Industrial output does not yet account for a significant part of the GDP. In the basic resources for industrial development, Nigeria is more fortunate than many other developing countries. It has a good labour supply, numerous raw materials, fuel, water, home market of people whose incomes are gradually rising, and investment capital. The plateau area of Nigeria produces large quantities of tin and nearly all the world's output of columbite, a metal used increasingly in the manufocture of alloys capable of resisting high temperature. Nigeria is the world's sixth largest producer of tin producing about 10,000 tons per year. There are coal fields, deposits of lignite lead and zinc. Hopes of Nigeria becoming a petroleum producer were bright in 1953 when oil was found in the eastern region. Today, petroleum has changed the whole face of Nigerian economy.

Discovery of Oil

The establishment of OPEC in 1960 was a turning point in the history of the oil industry. Nigeria, like other members of the 13-nation organisation, depends on revenue from oil for financing her development projects. Crude oil today forms the backbone of Nigeria's buoyant economy. Today the earnings from oil alone contribute over 80 per cent of the annual revenue of the country and are responsible for over 75 per cent of Nigeria's foreign exchange resources. With a daily output of 2.3 million barrels of crude oil, Nigeria is the ninth on the world oil rating and second to Algeria in Africa. Without oil, it would have been difficult for Nigeria to play the increasingly important role she now plays in Africa and the world. The rapid recovery from the civil war losses was made possible by the huge revenue from oil

Over the years the Nigerian oil industry has almost exclusively been the preserve of foreign private companies. Recently, the Government decided to involve itself in the oil industry. Nigeria is also guided in its relationship with the multinational companies by the conditions that obtain in the other producer countries, especially OPEC member-countries The Government established in 1971 Nigerian National oil Corporation, now called the Nigerian National Petroleum company (NNPC) for establishing some control over the oil industry. The country has benefited from higher prices, taxes and royalties from crude oil. Nigeria's share in the refining capacity of its crude oil is still small with only two refineries existing at present

Exports

Nigerian exports are over £150 million annually Almost half of these are represented by vegetable oil products - principally palm oil, palm kernels and groundnuts. Cocoa, the other major product, accounts for nearly one-fourth of total exports. Tin and columbite provide the largest share of the remainder. The bulk of agricultural export items are produced by small landholders. Textiles are the major items for imports. Transport equipment and machinery are the other items.

Development Planning

As regards development planning, the first attempt was made in 1946 when the Ten-year Plan of Development and Welfare was introduced. But real planning commenced when in 1962 the First National Development Plan (1962-68) was launched. Its objective was a growth in GPD of 4 per cent, increase in private per capita consumption by about 1 per cent per annum and the government consumption increase by about 15 per cent. Gross fixed investment was estimated at 15 per cent of GDP or N. 2366 million over the plan period, of which N 1586 million was to be spent in public sector. Most of these targets were actually exceeded in implementation.

The Second National Development Plan (1970 71, 1973-74) strived for an equitable distribution of income both among people and among areas, full employment of resources and an increase in the employment of labour force. The Third Plan (1975-76/1979-80) emphasised on utilising oil resources for promoting rapid development in the overall economy. Extension services were provided to improve the quality of life and to alleviate the existing bottlenecks in infrastructure. The current Fourth Plan is upto 1985.

Control of Inflation

It is heartening to note that on the whole inflationary pressures are under control through schemes of price conrols and their effective implementation. Wage rates for the private sector are normally fixed by collective bargaining without government intervention. Open unemployment is mostly an urban phenomenon and is heavily concentrated among the younger age groups and among school leavers. In the rural areas, disguised unemployment is a serious problem. There is a continuing migration from the rural to urban areas from agrcultural to non-agrcultural employment.

Since 1972 exchange liberalisation and trade system have been introduced. Tariff policy has been adjusted in a flexible manner for improving the competitiveness of Nigerian industry and for checking the increase in import prices. The evolution of Nigeria's balance of payments has been dominated increasingly by developments in the petroleum sector. In 1973 the contribution of the petroleum sector was of such a magnitude that it yielded a surplus in the current account of the balance of payments for the first time since independence. Capital inflow on account of the petroleum sector comprises direct investment in the form of reinvestment of undistributed income and other investment in the form of capital equipment. The member states of the Economic Community of West African-States (ECOWAS) were to eleminate their tariff barriers to their industrial products with effect from May 28, 1981 as per the latest decision of ECOWAS. By May 28, 1989 the elimination process is expected to be completed throughout the Community. At the first economic summit of the Organisation of African Unity (OAU) held in Lagos in April, 1980 President Shagar of Nigeria stressed on political cooperation in a sustained manner with a view to forge continental unity in the realisation that it is a pre-condition for, and foreunner to, economic independence. Surely, one can hope that the country is now well-poised for a breakthrough in its economic development. ☐

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Dr. Atul

The answer to Nagaland's stagnant
which is possible only in tl

NAGALAND was formed on December 1, 1963 as a full fledged State. The State has an area of 16527 sq. kms. with seven districts, three sub divisions and three towns. The State has three distinct geographical regions, namely high hills areas, medium hill ranges and foothills. It does not have any big rivers. The western half is economically more advanced than the eastern half. Soils of Nagaland are by and large fertile and responsive to fertiliser applications. They are acidic, rich in organic carbon but very poor in potash and phosphate content.

According to 1971 Census Nagaland had a total Population of 515561. About 88 per cent of the population belongs to Scheduled Tribes. The literacy rate of Nagaland of 27.3 per cent, although lower than the all-India average of 29.4 per cent, comparers favourably with that of some other States. But the percentage of literates without any educational level is very high. The vast majority of the literates have attained formal literacy only, as is evident from the very low percentage of primary or matriculates and above, in the total number of literates. Even among those who have received formal education, the overwhelming majority have received only general educationn; the number receiving technical education is exceedingly small. This shows that the manpower resources of the State continue to be unsatisfactory for industrial development, despite very rapid rate of increase in the literacy rate in the post-independence period.

The low percentage of sown area in Nagaland is on account of wide prevalence of jhumuming.

Nagaland has a very high participation rate of 50.8 per cent compared with the national rate of 32.91. It is due to the primitive technology used in agriculture and cottage industries which compels almost every able-bodied person above the age of 10-12 years to work for a livelihood.

Resources

The State is not favourably endowed with natural resources. An area of 30673 hectares (1.9 per cent of the geographical area of the State) is under reserved forests. With 51799 hectares under protected forests, (3.1 per cent of the total area), about 2,07,000 hectares (12.6 per cent of the total area) are under village or community forests over which the Government have very little control. Because of the shifting cultivation practised by the inhabitants, virgin forests are confined to inaccessible and high mountainous regions only. The current fallow area is covered by secondary vegetation consisting of grasses and reeds because of repeated jhumming. There are large patches of bamboo forests in Mokokchung and Kohima districts. Based on bamboo and reeds, an integrated paper and pulp mill with a capacity of 100 tonnes per day involving an investment of Rs. 65 crores has been set up at Tuli in the district of Mokokchung jointly by the State Government and the Hindustan Paper Corporation. The other forest areas which offer some scope for economic exploitation are Namza-Tijit in Mokokchung district and Rang Pahar in Kohima district. The State Government have also started rubber plantation in the entire foothills because of the favourable climatic conditions.

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A Naga in his poultry farm.

it a culture is technological improvement
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Other forest resources are citronella grass and various specimens of discorea, digitalis, lanta and mentha. There is a great scope for an effective utilisation of these medicinal plants. The State Government have very rightly encouraged the cultivation of these plants in waste lands. Arrangements have also been made for their processing.

The known mineral resources of Nagaland are not significant. Mention may be made of Borjan coalfield (estimated reserves are 55 million tonnes) in Mon district and a 10 million tonnes deposit of magnetite with associated minerals at Kriphrey subdivision of Tuensang district. Occurrence of oil has also been reported at Borhola and Merpani areas of Wokha district. Exploration of more minerals is likely with detailed geological mapping.

The financial resources of the State are slender. The tax base is very small. But a large sum of money flows out to the rest of the country. This amount can initiate a moderate progress of agricultural and industrial development, if properly harnessed. The commercial banks have started operation in the State and deposits have been increasing substantially year after year.

Human resources are similarly very limited. There is acute dearth for skilled labour. Technical skill formation among the local people has hardly started. Even fly shuttle looms are yet to replace the loin looms. The Inner Line Regulation is preventing the inflow of technical skill from the rest of the country.

Infrastructural Facilities

Nagaland, like other constituents of the north eastern region, is deficient in transport infrastructure. The State has 8.1 kms. long railway. The railway connecting Gauhati with Dibrugarh runs parallel to the western boundary of the State. Dimapur is the only railway station within the State on this section. Naginimara in Tuensang district is another minor railway station on the Branch line in the Jorhat-Dibrugarh section. The severe tophography of the State is partly responsible for the poor railway coverage of the State.

Roads form the most important means of transport in the State. Fortunately, the road system is not bad, although much more remains to be done. National Highway 39 passes through the southern part of Nagaland linking Dimapur with Kohima and Imphal in Manipur. Because of its links with railway and national highway, Dimapur has grown into an important commercial centre which handles the entire export and import trade of western Nagaland and Manipur. The State's total road length in 1976 stood at 4049 kms. There is 1 km. of road for every 4.08 sq. kms. of the State's area. In view of the difficult topography, this cannot be regarded as very unsatisfactory. The length of surfaced road stood at 1085 kms. and that of unsurfaced 2964 kms. in 1976. It has to be noted that compared with the western part, the eastern part is more backward in road communication because of sparse population and difficult terrain. There is now regular air service connecting Dimapur with Gauhati and Calcutta.

There were 14 branches of commercial banks in the State at the end of June 1976. The State does not have a State Financial Corporation. However, Nagaland Industrial Development Corporation meets the needs of industries in the State. Nagaland State Raw Material Supply Corporation also helps the industrial units in getting supplies of scarce raw materials.

Agriculture

Nagaland's agriculture is yet to make a break-through. The State is deficit in foodgrains and imports rice from Manipur. However, there is scope for increasing food production through such devices as replacement of shifting by terrace cultivation, increased use of high yielding varieties of seeds, chemical fertilisers, pesticides etc., the introduction of double cropping in place of single cropping practised so far and the expansion of the area under irrigation. Soils of Dimapur area being suitable for sugarcane cultivation, there is scope for increasing the production of this cash crop by bringing more area under its cultivation. A public sector sugar plant with a crushing capacity of 1250 tonnes per day and an investment of Rs. 370 lakhs has been set up at Dimapur on the basis of this crop. The climate and soil of the State are also favourable for horticulture, especially for the tropical and sub-tropical varieties of fruits like pineapples and oranges.

According to the report of the Agricultural Census of Nagaland 1970-71, 41.9 per cent of the total land was set apart for cultivation. This included area under, shifting cultivation, permanent cultivation and plantation. Reserved forests constituted 2 per cent while protected forests claimed 3.1 per cent of total land. 2.4 per cent of the land was for 'civil use'. The remaining 50.6 per cent land included forests belonging to the villages' wastelands etc.

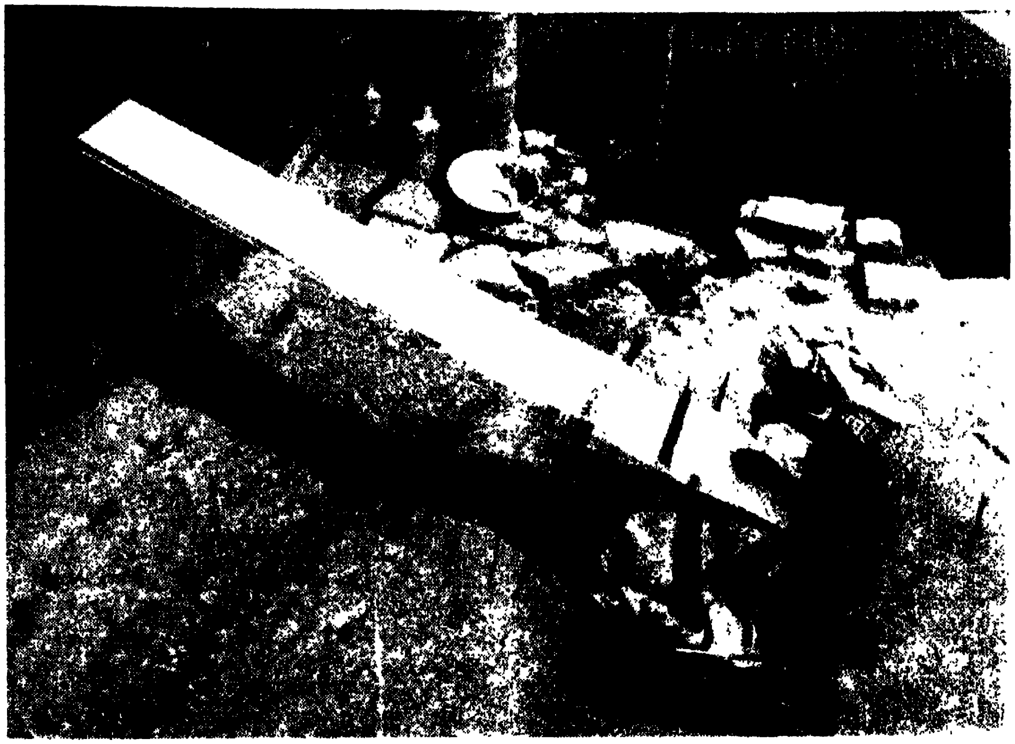
About 90 per cent of the cultivated area is under rice. Pulses, oilseeds and fibres account for less than six per cent, while miscellaneous crops account for six per cent of the cultivated land. Because of the wide pervalence of shifting cultivation, Nagaland continues to be deficit in foodgrain despite acreage of land under foodgrains (94,400 hectares in 1973-74). Fortunately, there has been a steady decline in the acreage of land under autumn rice (which includes jhum rice) and a crorresponding increase in the area under winter (RTC) rice and other cereals and small millets. The area under winter rice went up from 15,362 hectares in 1961-62 to 29,510 hectares in 1975-76, owing largely to the efforts of the Government. It is to be noted that the answer to Nagaland's stagnant agriclutude is technological improvement which is possible only in the case of terrace cultivation.

Signs of technological breakthrough in Nagaland's agriculture are perceptible in some pockets. Steps not only to replace jhumming by terrace cultivation but also to bring more areas under irrigation have been continuing. Irrigated area stood at only 26,171 hectares in 1970-71. This has increased to 33,437 hectares in 1973-74 and further to 33,854 hectares in 1975-76. Similarly, attempts to bring more area under high yielding varieties are continuing. The area under high yielding varieties of rice, maize, wheat and mustard stood at 2508, 1543, 342 and 283 hectares respectively in 1975-76. Unfortunately, the increase in agricultural production has not been commensurate with efforts for transformation of primitive agriculture into a modern one. Despite the none-too-insignificant increase in the area under terrace cultivation and irrigation, Nagaland's agricultural production has remained more or less unaltered.

According to the World Agrcultural Census, 1970-71, the number of operational holding in Nagaland stood at 93,262 while operated area was 5,03,763 hectares giving the average size of operational holding of 5.4 hactares. It was revealed that only 33.76 per cent of the total operated area was sown with crops. This low percentage of sown area to the total area operated was because of the wide prevalence of jhumming with the jhum cycle varying from 5 to 8 years.

As Roy Barman in his "Demographic and Socio-Economic Profiles of the Hill Areas of North-East India" has pointed out, one finds three classes of farmers in Nagaland. The first group consisting of progressive farmers located over the villages on foot-hills has taken over permanent cultivation and has adopted improved methods of cultivation. This group has some surplus production. These farmers are likely to respond very promptly in favour of any rational scheme of agricultural development. The strategy should therefore be giving more incentives in the form of loans and subsidies available to this group. The second group of farmers is in the transitional stage from shifting to permanent cultivation. This group forms the bulk of the farming population. These farmers live in difficult conditions of the hills and hardly produce sufficient food to feed themselves. They also need various inputs at subsidised prices. But more important, they need subsidy for land development, land reclamation and for creating irrigation facilities. The last category of farmers who live in interior and inaccessible areas are chronically deficit in food production. They are still practising the ancient system of cultivation. Measures like improvement in communication, opening of demonstration farms etc. may be of some help for this group.

Among the tribes the Angamis have been practising terrace cultivation from a long time. The State Government have very rightly emphasised the need for switching over from jhumming to settled cultivation among other tribes. Subsidies are given at the rate of Rs. 740 per hectare for constructing terraces as against the average estimated cost of Rs. 3,000. In addition, inputs like chemical fertilisers, seeds, pesticides, tools etc are supplied at 50 per cent subsidised prices. Permanent cultivation is likely to bring immense benefits to the people of Nagaland by increasing the productivity of agriculture and releasing substantial mandays for ancillary occupations like horticulture, poultry rearing, handicrafts etc.



A Naga lady weaving a shawl.

Industry

Organised industry had a late start in Nagaland Even now the number of organised industries is very small. Lack of infra-structural facilities, and entrepreneurial talents, limited physical resources, difficult terrain, limited population and restriction on the entry of outsiders to the State act as constraints to industrial development. Dimapur, a rail head adjacent to the Assam plains, is the only centre with some industrial activity. In the rest of Nagaland, handicrafts are the only industry. The villagers meet their own requirements of cloth baskets, furniture, implements etc. using traditional techniques and tools.

Among the organised industries special mention may be made of the Sugar Mill at Dimapur, Paper and Pulp Mill at Tuli and the Plywood Factory at Nimaza-Tijit-Tedang.

The entire State is declared as industrially backward and qualifies for concessions including Central Government's outright subsidy. In many cases, however, loans were not utilised for the purpose they were granted. Only the sons of the soil are entitled to licenses for setting up of an industrial unit, for running a shop or for constructing roads and buildings. As observed by the study team on the industrial potential survey of the State sponsored by the Industrial Development Bank of India that, on many occasions the tribal concerned transfers the benefit of the licence to an outsider and thus becomes an absentee owner. This Policy has created a new tribal renter class which is not helpful for the industrial development of the State. It would be much better to provide management assistance to the tribal for running their own business.

Nagaland's economy is marked by low utilisation of resources and limited knowledge of resource potential. The State Government have very rightly taken the role of promoter entrepreneur. It has not only to take the initiative in building up the necessary infrastructure for industrial and agricultural development, it has also to foster the growth of a class of elites who can assimilate the information, perceive the advantages of taking follow-up action and bear the consequences thereof. The elements of subsidy, grants and low rate of interest have created an atmosphere of soft loan in the minds of the local people. For removing this feeling, there is an urgent necessity for formulating a clear industrial policy of the State Government. In the field of agriculture the present strategy of replacing jhumming by terrace cultivation should continue because this alone can release a substantial number of mandays for utilisation in subsidiary occupations. In the industrial sphere major emphasis should be put on the creation of industrial skill, entrepreneurial ability and managerial talent. Because of the small population base of the State, it will not be practicable to plan for large demand-based industries. Future industrial development should be thought of on the basis of available resources. Above all the industrial development of Nagaland cannot probably be thought of in isolation. A well-integrated industrial development plan for the entire north-eastern region comprising Assam, Meghalaya, Manipur, Tripura, Mizoram, Arunachal Pradesh and Nagaland offers the best solution to the problem of industrial development of the region, many components of which in isolation are not viable for large-scale industries. This calls for discovering the complementaries among the various units. □

Tribal Labour Force

L. C. Sharma*

INDIA has second largest concentration of tribal population which can be divided into three main groups (1) Tribal pockets of Southern India, Andaman & Nicobar Islands. (2) tribes of north east India and (3) the tribes living in the belt which runs from Orissa to Gujarat.

The Working Force

The working force in tribal population as per 1971 census comprises 14.62 million. Most of the workers earn their living as cultivators, agricultural labourers, and by activities like, forestry, fishing, hunting, plantation etc. Tribals usually practice shifting cultivation. They lack basic knowedge of weights and measures including the wholesale prices. They are cheated by traders. They borrow from the traders on personal security and repay the debt in kind i.e. either in agricultural produce or in forest produce or both. The tribals have to accept the agreed price for their produce which is much below the market price.

The size of the land holdings is small and the terms on which land is cultivated by the scheduled tribes is relatively low, along with the lower number of cultivation among this class. They do not earn enough to meet their daily requirements, besides they are liquor addicts. They borrow to celebrate marriages and death anniversaries. Rate of interest ranges from generation to generation. The tribes repay the loans honestly. They honour all the entries which the traders make in their books. The traders usually induce the tribals to borrow for their own benefit. A government or cooperative agency should replace this system to end their exploitation by money-lenders. Such an agency should take up the marketing of the entire produce of the tribals and provide them with the necessities of life at reasonable price and offer them credit facilities on easy terms and conditions.

Forest Regulations

The tribals inhabited the forests freely before the Britishers came to power in India. They used to earn their living by exploiting the forest wealth. However their freedom to exploit forest wealth was curtailed when the government started controlling the forests. The forest Department employs a good number of them. Scheduled Tribes Commission has rightly pointed out that the concept of regulating the rights and restricting the privileges of the tribes has effected their lives deeply. The Forest Policy Resolution of 1952, however, envisaged that intermediaries who exploit both the forests and the local labour for their own benefits may be replace by forest labour cooperative societies which may be formed to suit the local conditions. It is true that many restrictions which are imposed on tribals are in public interest but the interest of the illiterate tribals should also feel safeguard. Care should be taken that they don't feel that they are being driven out of their homes.

The government of Gujarat took a policy decision to replace all intermediaries who exploit the forest labour. All the high level commissions and committees have recommended the replacement of contractor system by cooperative societies. Adequate development funds are required to make this policy a success.

The Forest Department requires labour force on permanent basis for carrying out different operations in the forests i.e. survey, demarcation, felling, extraction, construction of roads, laying out plantations etc. as these opertions involve constant work in the interior of forests, the forest department organizes labour camps to ensure regular flow of manpower. There is a large number of forest villages in the country for this purpose. It is estimated that Madhya Pradesh alone has nearly 1,000 forest villages in which about 100,000 persons live.

Recognition of tribals' right to draw upon forest resources for their domestic consumption and as raw material for agriculture and other economic persuits is very essential.

Generally, tribals living in forest villages live on hunting, bird trapping and fishing, collecting and selling forest produce like honey, fuel and cane. Some tribals are cultivators also.

On the promulgation of the policy to develop forests on scientific lines, the forest department has imposed many restrictions on hunting, fishing and cutting trees and shifting cultivation on forest, lands. The tribals are being compensated by concessions like cultivation of forest lands permanently and cutting tress for domestic use

Occupations

Some tribals like Banjaras and Marathas follow settled cultivation. Once Banjaras were good traders also. The Kadugowdalus are good arisans and manufacture of attractive grass mats. The Medas prepare bamboo, reed and cane articles. Some Killekyatabs make leather dolls and also cloth dolls. They make fishing nets also. They also specialize in preparing a dye called (pachcha) which is used for tatooling. The Kurubs and Kudiyas are shepherds who weave good quality blankets. Some tribals particularly Bhills work as quacks, religious mendicants, snake charmers and acrobats. A good number still make a living by capturing birds, small animals, reptiles. Some tribal women work as palmists and fortune tellers. Some others like the Kapalis are fond of collecting and selling wild roots and herbs.

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*Planning Commission.

The tribals have to face many kinds of social sanctions on account of which they are unable to take to more remunerative occupations. They are still treated as untouchables which effects their mobility in the society. Since India is predominantly an agricultural country, the relative position of a community is judged by its share of cultivable land. Tribals have little land to cultivate and they are economically backward. They have a higher rate of growth than the rest of population, they are less urbanised and have a lower rate of literacy. Consequently, they have a lower standard of living.

Tribals lack basic knowledge of weights and measures including the wholesale prices. They are cheated by traders. They borrow from the traders on personal security on the understanding to repay the debt in kind

The investment for tribal areas' development in 1977-78 was Rs. 2,000 million which included Rs. 1,500 million from state plans. According to the Minister of State for Home Affairs, Rs. 15,00 milion were provided during the Fifth Five Year Plan for tribal development. A new accounting system has been devised to prevent diversion of resources meant for tribal development to other areas. This system allows every functional head to have a separate sub-head for tribal sub-plan areas. This arrangement has been done to ensure proper development of tribal areas with proper utilisation of development funds. There are some laws for protecting tribals land, yet the land continues to be alienated. So the administration should see that the tribals get the optimum benefit.

Of the total tribal working population 93 per cent are engaged in agricultutral pursuits, agriculture being their mainstay. Therefore, it should be given high priority in any programme of tribal development.

Concessions should be granted on uniform basis to all the tribals in a state irrespective of the region. The existing friction between the forest department and the tribals can be reduced if they are recruited by the Department to man the positions of guards, watchers, peons, mahouts etc. and wherever possible to higher posts. The tribals should be provided employment opportunities in forest, agriculture, animal husbandry and industries at least for 300 days in a year.

Application of Minimum Wages Act to forest labour should be considered. Recognition of tribals' natural rights to draw upon forest resources for their domestic consumption and as raw material for agriculture and other economic persuits without commercialisation of raw materials is another impoitant factor. It is necessary that the Minimum wages Act should be implemented in every state to benefit the tribal forest labour.

The various plantation schemes which are suggested in the Plan should not make the tribals merely wage earners but active partners of the scheme. It can be done by assigning them a part of the income derived from it by organizing cooperatives. They should be given right to free grazing, lifting of timber for domestic and occupationsal use and collection and sale of minor forest produce.

Sericulture Industry in Cachar District of Assam

Hiraprasad Nath*

SERICULTURE in Cachar district of Assam is playing a very important role in rural economy. Though it is a traditional industry of the Barman Kachari community (plain tribal), sericulture industry is becoming popular among other communities of the district.

An eri seed grainage at Darmikhal and Mulberry seed farm at Paliapool are being established for supplying disease free seeds to the village rearers. Besides meeting the requirement of the district of Cachar, these two farms supply seeds to adjoining Mizoram, N. C. Hills, Karbi Anglong District and other places in Assam. The seed is distributed among the village rearers at a small price through the Sericulture Demonstrators appointed in different parts of the district. These demonstrators also help the villagers in other matter related to silkworm rearing like plantation and maintainance of silkworm food plants, silk reeling, spinning etc.

In different parts of the district 11 eri concentration centres, eight Collective Mulberry Gardens and four som Plantation Centres have been established. Muga Rearing, a monopoly business of Assam was not practised previously in Cachar district but presently Muga rearing has also been introduced here through these som plantation centres.

Arrangements have been made for granting aid and subsidy from annual plan and tribal sub-plan scheme to the rearers for construction of their own rearing houses and to provide loans from nationalised banks at low rate of interest. Three silk reeling units under a reeling expert have been established in different part of the district.

Eri silkworm rearing and subsequently spinning and weaving of eri silk is a profitable business of the Barman (Kachari) community of the district. The sericulture products of the non-weavers are being sent to Assam Spun Mills Ltd. Jagiroad through the departmental co-operative societies.

A few Khadi and Gramudyog samittees are established for the sericultural products. Two more Eri seed Grainages are under construction. □

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*Manager, Government Eri Seed Grainage Darmikhal, Cachar, Assam.

Export Potential of Tobacco

Dr. Badar Alam Iqbal*

INDIA is the third largest producer of tobacco in the world. Accounting for nearly 8 per cent of the total world crop it comes next to USA and China. At present it has 4.9 lakh hectares under this crop with an annual production of 4.5 lakh tonnes. The chief tobacco growing states are Andhra Pradesh, Gujarat, Karnataka, Tamil Nadu, Orissa, Bihar, West Bengal and Maharashtra. Out of these states, Andhra Pradesh ranks first. Gujarat comes next, while Karnataka holds the third position. This is because of the availability of black porous soil in these states which is considered as most favourable for the cultivation of quality grades of tobacco.

Exports

India is the third biggest exporter of tobacco in the world coming next to the USA and Turkey. Our export earnings from tobacco went up to Rs. 111 crores in 1978-79 from a mere Rs. 14 crorer in 1950-51—an increase of more than 692 per cent. The exports during 1979-80 are expected to be around 70,000 tonnes valued at Rs. 110 crores against 68,770 tonnes worth Rs. 111 crores in 1978-79, showing a marginal fall.

India is the third largest producer and exporter of tobacco in the world.

The growth in earnings has been mainly due to higher unit value realisation which has gone up from Rs. 14.67 per Kg in 1977-78 to Rs. 15.65 per kg. in 1978-79 and to Rs. 17.89 per kg. in 1979-80. This all indicates that the tobacco has bright future in international markets.

Since there is increasing demand for tobacco, it is necessary to retain export growth between 10 and 30 per cent taking the total export much higher than the target of Rs. 200 million. In view of the current rising international demand for tobbacco and the current growth rate of tobacco, it is essential for the country not only to achieve the target by the end of 1983-84, but also to reach a much higher ambitious export level of Rs. 300 crores by then.

India exports tobacco to nearly 40 countries. The principal buyers of our PCV tobacco are UK, USSR and Bangladesh. In Western Europe the UK is the principal buyer of Indian tobacco. Exports to France also have registered a sharp rise. Exports to Italy and the Netherlands of course have declined, while those to Belgium have shown no change.

Grading of tobacco in progress

In Eastern Europe, exports to the USSR have gone up appreciably. Czechslovakia and the German Democratic Republic have maintained their usual intake. Bulgaria has also been importing considerable quantity of India tobacco. Exports to Middle East Region have declined considerably, while in the east Japan is the leading importer of Indian tobacco. Exports to Bangladesh have registered a steep fall.

Quality Improvement

Although India has a potential for producing good quality tabocco, it would take some more time for its tobacco to command reputation and a higher unit value in the world market, as it is yet to attain high standards required by importers. We have to compete with other countries such as the USA, Italy and China in the interntional markets. The Central Government should make studies both of national and international situation of tobacco from time to time and come to rescue at the time of need.

In the world markets there has been an increasing demand for India's FCV tobacco. If India organises regular and satisfactory supplies and launches an aggressive publicity campaign, it is possible to take tobacoo exports much beyond the target The areas in which improvements are required include quality as well as reasonable prices. The performance in the export horizon would depend largely on effeective solution of these problems.

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It is proposed to bring additional 12,000 hectares in new areas under FCV tobacco in the states of Andhra Pradesh, Karnataka, Uttar Pradesh, Gujarat and Tamil Nadu. While the productivity per hectare has gone up considerably, it is essential to make concerted efforts to tackle the problem of plant diseases such as tobacco mosaic virus root knot nematode etc. The research programme being carried out by ICAR on various aspects is aimed at enabling the country to produce more and more of better tobacco especially the exportable type. The Central Tobacco Research Institute in Andhra Pradesh is mainly devoted to the investigation of fundamental problems related to various aspects of tobacco. It also coordinates the work of other tobacco experimental farms and research stations spread all over the country, which are carrying out research on different types of tobacco grown in the concerned regions. Similarly, the Indian Tobacco Development Council formulates the tobacco development plans reviews the progress and considers the problems of marketing, trade and price policy. Likewise, Directorate of Tobacco Development, Ministry of Agriculture, implements the developmental schemes. Government finances and renders technical advice and guidance.

The Government of India has announced the minimum export prices for tobacco. The new prices have been fixed for the crop years 1978-79 and 1979-80 because State Trading Corporation has been carrying unsold stock. These prices are effective w.e.f. 15th February, 1980. Similarly the minimum f.o.b. unit value for higher grade of tobacco has been increased, while the same for lower grades reduced. However, there is no change in the unit values of medium grades. The crops and grades for which minimum export prices had not been fixed are free from these restrictions. □

Silken Chittoor

N. S. Kuppu Raju*

SHIMMERING silk sarees sing many a scintillating song of the dextrous hands employed in the industry. For some it is a part time avocation and for many, particularly in Chittoor district of Andhra Pradesh it is a round the year profession. Palamaneru, Punanuru, Kuppam, Madanapally and Vayalpadu Taluqs of the District have relatively cool and soothing climate even in summer, essential for the rearing of silk worms. Of late, mulburry plantations have been established in the adjoining taluqs like Chittoor, Chandragiri, Putturu, Satyavedu and Kalahasty. Therefore, it can be said that entire district of Chittoor is now nurturing this delicate home and farm industry.

In 1974-75, when the State was reeling under famine, special efforts were made to encourage mulberry plantations in Chittoor District and to provide employment opportunities to the farmers and labour. Under the six point development programme, this industry received further impetus and assistance. About 2,566.85 acres of land was under mulberry plantations in the District, during 1974-75. On account of incentives offered, the area has gone up to 8000 acres now. Subsidies are offered to small and marginal farmers for digging up new irrigation wells, construction of rearing rooms, purchase of implements etc.

Until 1974-75 Palamaneru was the only centre for rearing of silk worm in Andhra Pradesh. Under the State Famine relief programmes, two more such production units were commissioned-one at Madanapally during 1976-77 and the other at Kuppam during 1977-78. The production of silk rearing worms in 1979-80, at these two centres, was estimated around 12 lakhs. In the year 1979-80 two more centres were started at Pungnoor and Peeleru. These two centres

The government silk farm at Palamaneru offers training facilities to farmers engaged and interested in rearing of silk worms and mulberry plantations They provide training for 135 farmers in a batch. The three month training course covers production and rearing of silk worms, mulberry plantations etc. Stipend is provided to all the trainees. Similarly the Centre also supplies free of cost, all the required rearing implements to SC/STs, engaged in this work.

Most of these farmers are poor and economically backward. They rear the silk worms in their houses. Since the rooms for rearing are to be specially built, most of the small farmers find it difficult to carry on the trade in the houses. Therefore, Government has constructed 13 rearing rooms and converted four of them as *chakee* rearing units. Here in these *chakee* units the departmental personnel and technical staff supervise the programme and rear the silk worm upto the second stage. Then the seed is supplied to the farmers for further rearing at their gardens and homes. Such arrangement eliminates the fear of loss, under growth, or infection, which commonly effect the silk seed at the early stages. Encouraged by this experience, government has decided to open two more silk worm rearing units, one at Molakalacheruvu and the other at Chittoor during the current financial year. In addition, plans are afoot to bring an additional area of 4000 acres under mulberry plantations.

It is also planned to open a new (pure race) silk worm egg production unit at Horsely Hills. The climatic conditions around Horsely Hills is said to be most suitable for such a centre. With the commissioning of this pure race silk worm egg centre, the farmers of Rayalaseema will have a better opportunity of procuring pure race silk eggs for their silk farm units.

During 1980-81 under the programme of self-employment scheme, the Government has sanctioned Rs. 1,06,200 to encourage entrepreneurs take up the silk worm rearing programme. Under the scheme, unemployed farmers of Chittoor, Nellore and Prakasam districts can receive all benefits. It is expected that about 200 persons can find employment opportunities under the schesme in this field.

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*Taluq Information officer.Chitoor district A.P.

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Biogas Plants : Time for a Pragmatic Approach

J. B. Singh*

THE relevance and importance of biogas in the context of energy economics and organic manure production are far too well known to require elaboration. However, the question arises as to why, despite so vast a potential, adoption of biogas plants is so poor. Even though India has been a pioneer in the research and development of biogas technology, why is it lagging behind other countries, particularly China, in the assimilation of this technology on a large scale ? It is in this context that the present policy needs to be reviewed before the future course of action can be decided upon.

Technological Constraints

The biogas plant designed by the Khadi and Village Industries Commission (KVIC) has been extensively propagated in India. The KVIC model is the steel-gas holder biogas plant commonly observed in the countryside. Over 85,000 of these plants are reported to have been set-up although unfortunately many are not in working order. Considering the difficulties and failures and the fact that not many plants of any design other than the KVIC model have been constructed, poor response can largely be traced to the draw-backs of the KVIC plant itself.

The primary reason for the failure of this design arises from the fact that biogas contains small quantities of Hydrogen Sulphid, Amonia, etc. which corrode the metallic gas holder causing gas leakage. This is all the more pronounced if proper maintenance is lacking. It is also well known that the digestion process is extremely sensitive to sudden temperature changes and bacterial activity is negligible below 10°C. Thus, the KVIC model, which is exposed to fluctuations of atmospheric temperature, often runs into difficulties specially in areas where day and night temperatures vary considerably. In such areas gas production is very low and at times ceases completely during winter. The high cost of the KVIC plant, scarcity of cement and steel, difficulties in transporting the prefabricated metal gas holder to inaccessible rural areas and lack of adequate afterconstruction service facilities, are some of the other constraints in its adoption.

Cooking is pleasure on biogas stove

Design Choices

In spite of the above constraints, the fact remains that the KVIC plants continue to receive vigorous support and publicity, even though a more appropriate design is now available. The alternative is a hybrid model combining the good features of the KVIC and Chinese designs. It is known as the Janata biogas plant and has been developed by the Gobar Gas Research Station (GGRS) Ajitmal, Etawah. Like the Chinese model, it is a cement and brick structure and completely eliminates the need for steel—an expensive and scarce commodity. It also has a continuous feeding

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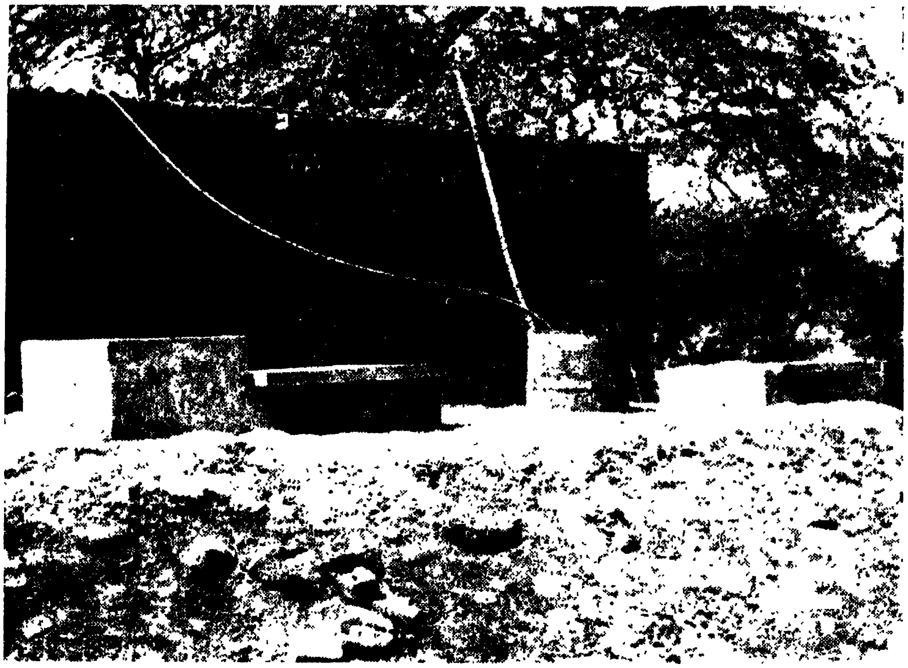

Janata type biogas plant is a boon to the rural poor.

system as in the KVIC model. Spatial constraints observed in many villages where huts are clustered closely together are also partially overcome as the plant is constructed below ground. Being underground the Janata plant is somewhat insulated against temperature changes. In fact Janata plants constructed by Action For Food Production (AFPRO) in Delhi, Rajasthan, Maharashtra and Andhra Pradesh are known to be functioning well and even in Punjab and Uttar Pradesh they have done exceedingly well during the past few cold winter months. The Janata plant costs about 30 per cent less than the KVIC plant of comparable size and requires practically nothing for maintenance and repair.

Considering the above factors it is indeed surprising that as recently as 1979 the Janata model was known only in U P. where roughly 50 plants were reported to have been constructed and were in operation. Even now perhaps of the multitude of organisations interested in the Janata model, AFPRO alone is working throughout the country for the systematic assimilation of this technology.

Problems in Extension

Some people fear that the propagation of the Janata model will result in the closure of the small private sector units manufacturing the KVIC gas holders. But can one foster the interests of a few businessmen in preference to the larger interests of the nation? Where is the justification for propagating only one model in preference to others ? Would it not be better to leave the choice of model upto the man who actually pays for it rather than to the promotional agency?

The problems of technology dispersion are magnified because the KVIC and many State Governments subsidise only one model. In these states absence of subsidies for the Janata plant deters many villagers from constructing it even when they are convinced of its advantages. It is in this context that the whole question of subsidies on bio-gas plants needs to be reviewed.

Although the Janata plant is cheaper, it is still fairly expensive and well beyond the means of many poor farmers. It stands to reason that only farmers who have the means can install them. Moreover, considering that at present biogas plants are primarily run on dung, the villager must be in a position to maintain atleast three heads of cattle for the economic running of biogas plant. Obviously a farmer who can afford all this does not necessarily need any subsidy. Then why not abolish subsidies altogether ? In any, case, judging from the numerous requests AFPRO receives for technical "know-how" it can be safely said that there are many farmers who are willing to foot the bill for construction, irrespective of whether they get a subsidy or not. All that they ask for is "know-how" for construction and cement and accessories at reasonable prices.

Implicit in the above reasoning is that a very large number of the poorer villagers are not in a position to enjoy the benefits of this technology. Community bio-gas plants may be the only feasible answer for this class of the rural population. However, to convince poor farmers to pay for a community plant will not only be a Herculean task but in many instances they may not even have the resources to pay for the cost. It is for these plants, serving the poorer classes of the peasantry, that subsidies have a relevance. What is, therefore, suggested is that subsides for the family-sized plants be withdrawn while 100 per cent one time capital investment be made for the community sized plant provided the community undertakes to run and manage plants on a cooperative basis.

Considering the various constraints, such as unfamiliarity of rural masons with construction techniques difficulties of procuring cement, the fairly significant cost of the biogas plants, etc., it may be argued that research to develop a cheaper plant should be intensified.

At present most researchers are engaged in experimentation and designing new models to achieve recognition and plaudits in the scientific community. Nobody will question the desirability of developing better and more efficient and appropriate models, but technology already available should be given greater importance and be transerred to the villages as fast as possible. Also extension and propagation of biogas should be unbiased with equal publicity and infrastructural support facilities for all models. For this a national biogas extension organisation needs to be set-up which would not only collect information on scientific developments but provide logistic, infrastructural, financial and technical support for the assimilation of all the available models. The choice of model should rest squarely with the people who are going to use the plant rather than the propagating agency. Extension education should be intensified as various studies indicate lack of awareness to be one of the constraints. The national biogas extension organisation should be entrusted the task of launching a massive training programme for teaching rural masons and artisans the art of constructing these plants as a measure for creating the infrastructural capability for a decentralised construction programme. ☐

A case study

Makhana Production and Marketing in Bihar

Dr. S. N. Jha*

MAKHANA (Euryola Eerox Sali SB) is an annual acquatic widely cultivated in north Bihar. It is a subsidiary occupation of people of the area.

There are over 60 thousand tanks and ponds in the entire State covering local water area of about 80 thousand hectares. Besides tanks and ponds there are big lakes also in the district of Champaran, Muzaffarpur and Darbhanga, having total water spread in the area of over 40 thousand hectarts.

About 60 lakh fishermen in Bihar belonging to Mallah, Kewat, Machua, Chaudhary communities and many tribals thrive on boat plying, fishing, makhana and trappa cultivation and other subsidiary occupation. These fishermen work as an organisation. But they are exploited by the middlemen. Their economic condition and standard of living are poor They still live in abject poverty as major portion of the benefit goes to middlemen and other people. This study covers Darbhanga and Madhubani districts in Bihar. Makhana can, no doubt, help rise the economy of Bihar. to some extent. It has its social religious and economic value. It is an important edible nut and is also used for extraction of starch in textile mills. The fruit has also good amount of nutritive and medicinal value. In Ayurvedic book "Bhawa Prakash Nighantu" its usefulness in curing different diseases has been discussed. Makhana seeds are sprayed on water surface during the month of October-November when water is stagnant and a minimum depth of water around 4 ft. is maintained.

Harvesting of Makhana starts from the month of August-September and is completed by the end of October. The method of harvesting is a very cumbersome operation in which generally fishermen are engaged. It requires much more labour than other crops. It is a cash crop. There is another variety of Makhana which is called Tal Makhana (Hygrophila spinosa).

The total production of Makhana in Darbhanga and Madhubani districts is about 15,000 quintals per year. The gross return of 15,000 quintals Makhana at Rs. 2,000 per quintal (minimum prevailing market rate) fetch Rs. 3 crores approximately. But the growers get only Rs. 6 per kg. from the middlemen who sell it at Rs. 20 per kg.

At present, private traders who have the monopoly of purchase are exploiting the growers by way of advancing loan and thereafter making outright purchage at low prices. The sale price of Makhana ranges from Rs. 6 to Rs. 30 per kg.

Recently the State Bank of India has chalked out a scheme for financing the Makhana producers. But most of the producers are unable to get loan from the Bank due to lack of extension services. Co-operatives should be established among the fishermen. These cooperatives can reduce the exploitation by middlemen and improve the storage and marketing facilities and help the fishermen in getting loans from bank. Medicinal value of Makhana should also be publicised.

The village cooperative society may help in collecting the produce from growers on behalf of Vyapar Mandal Sahayog Simiti and Biscomann of NAFED can arrange for proper packing, transport, marketing etc. In order to create proper market the NAFED may also arrange for proper publicity about this product. This item can be exported also

If the State government in collaboration with Central government pays adequate attention to makhana, employment opportunities to the farmers and fishermen enhance immensely. ☐

*Co-operative Training College, Dehradun

STEP BY STEP

Small Scale Sector Makes Steady Progress

Small Scale Industries have made steady progress during the last few years. The small scale sector accounts for nearly 62 per cent of the total production of the village and small industries sector in terms of value added. According to the Annual Report of the Small Industries Development Organisation for the year 1980-81, the production of this sector increased from Rs. 7,200 crores to Rs. 19,060 crores between 1973-74 and 1979-80, accounting for about 28 per cent of the total industrial production. During the same period, employment in this sector rose from 30.6 lakhs to 64.6 lakhs. Exports from the sector amounted to Rs. 1,050 crores, representing about 16 per cent of the total exports during 1979-80. It is estimated that the production in the small scale sector rose to the level of Rs. 28,080 crores (at current prices) during 1980-81. As many as 2,35,300 small industrial units received technical, economic and managerial assistance from the Small Industries Development Organisation during 1980-81.

The annual growth of production of small scale sector during the Sixth Plan is aimed at 8.7 per cent. It is expected that by the end of 1984-85, production level of Rs. 32,873 crores would be achieved. Similarly, the value of exports is also expected to go up to Rs. 1,850 crores. The employment is likely to go up from 67 lakhs in 1979-80 to 89 lakhs in 1984-85. Besides producing consumer goods, the sector now produces many sophisticated and precision products like electronic systems, micro-wave vomponents, electromedical equipment and TV sets. ☐

BHEL Bags FP Award

THE Tiruchirapalli Unit of the State-owned Bharat Heavy Electricals Limited has been given the 1980 All India Award sponsored by the Federation of Indian Chambers of Commerce and Industry, for significant contribution in the field of family planning and child immunisation in the country through its cafeteria approach. The integrated approach to family welfare planning with adequate ante-natal and post-natal, maternity and child health services has been successful in creating consciousness about the small family norm. Its efforts in the field of child immunisation as also providing anti-anaemic and vitamin A drugs to mothers and children are also commendable. ☐

Profit of BHEL

BHARAT Heavy Electricals Ltd., a public sector undertaking, made turnover of Rs. 776 crores in 1980-81 representing an increase of 10 per cent over the previous year's output. The company earned a profit of Rs. 35 crores. ☐

Organic Chemicals and Products from Coal

THE Central Fuel Research Institute, Dhanbad has successfully developed a technique to convert the macro-molecular organic complex of coal into simpler organic chemicals and products. A breakthrough in the oxidation technique which has been found very costly, is now achieved in CFRI in converting coal essentially with air and a small proportion of nitric acid into water soluble polycarboxylic acids which largely consists of mixture of aliphatic and aromatic acids and which, in turn, may be a good source of a host of aromatic and aliphatic chemicals and a base and intermediate for the synthesis of ion-exchangers, plasticizers, resins, fertilizers and the like. The new technique has now, for the first time, made the conversion possible with hardly one tonne of coal against 6-8 tonnes if oxidants required in all other processes. ☐

Mehsana tops in Milk Yield competition

IN the All India Milk Yield Competition, Mehsana District of Gujarat, bagged two 1st, and three 2nd and 224 consolation prizes. This is a new achievement for the district. A Mehsana buffalo, belonging to Shri Ambalal Maganlal Patel won the first prize of Rs. 2,000 by yielding 22.03 kg. of mlik per day. The 2nd prize of Rs. 1,000/- has been won by Mehsani buffalo of Shri Hargovindbhai Joitabhai Patel. She yielded over 19.5 Kgs. of mlik per day. The first prize of Rs. 2,200 in the Kankrej Cow category has been won by Kankrejcow "Kamdhenu" of Seth Shri Vitthaldas Hakamchand Gaushala by yielding 26.3 Kgs. of milk per day. Kankrej Cow "Malavi" belonging to Shri Fecharbhai Revabhai Chowdhary won the 2nd prize of Rs. 1,000 by yielding 18.28 Kgs. of milk per day. In the Cross Breed category of cows, the 2nd prize of Rs. 1,000/- has been won by the Cross Breed cow 'Krishna' belonging to Shrimati Menaben Revabhai Chowdhari. She yielded 29 Kgs. of milk per day. ☐

TRENDS

Domestic Planning Endeavour

THE Minister for Planning and Labour, Shri N. D. Tiwari has said that the Government has decided to pay full quantum of wages to the disabled employees instead of 70 per cent of wages being paid at present. Presiding over a meeting of the Consultative Committee attached to his Ministry in New Delhi recently he said it had also been decided to raise minimum wages in the mining industry by 16 per cent in view of the rise in the cost of living index.

Shri Tiwari said the Government was considering the question of evolving the basic principles which should determine a national wage policy. A Committee of officials had been appointed to draw the standard list of employments for which minimum wages were required to be fixed. The proposals for constitution of wage boards for sugar and construction industries and wage committee to revise the wage structure in the mica mines were being examined. Every possible measure was being taken to secure effective implementation of the existing schemes for workers' participation in management. Proposals for liberalisation of family pension and employees' deposit link insurance schemes were also under consideration. One of the essential objectives of the Government's labour policy, Shri Tiwari added, was to create an atmosphere of industrial peace and harmony essential for improving the industrial performance and production. □

Afforestation in Ravine Areas of MP

THE Madhya Pradesh State Forest Department's afforestation work includes improving the 503 hectare area adjacent to Piprai and Naikpura villages on the southern bank of rive Chambal besides the aerial seed casting operations which would be carried over more than 2000 hectares in the ravines of Chambal to arrest soil erosion. □

Panel on Employment

A high evel committee has been set up by the Planning Commission to advise the Central Government on employment planning issues and to oversee the functioning of district manpower planning and employment generation councils.

The committee will suggest ways and means for encouraging self-employment in all the sectors of the economy to advise on matters relating to restructuring of employment exchanges to enable them to offer guidance to persons desirous of starting self-employment ventures, and advise on suitable steps to be taken at the district level for integrating the district credit plans, training infrastructure marketing facilities and guidance services.

Besides Dr. Swaminathan, who is the Chairman, the committee comprises 19 members officials and non-officials. □

Vishakhapatnam Steel Project

THE main construction work of Vishakapatnam Steel Projejct will start in October this year. About 16,000 acres of land out of the total estimated requirement of 27,000 acres have been acquired for the plant, township and other facilities. This information was given by the Minister for Commerce, Steel and Mines, Shri Pranab Kumar Mukherjee, to the Parliamentary Consultative Committee attached to the Ministry of Steel and Mines in New Delhi recently. He said negotiations about the Pradeep Steel Plant had been held between an inter-ministerial committee and foreign parties to firm up the prices and other terms and conditions. Final decision for the setting up of the plant would be taken after receipt of the recommendations of the committee.

The integrated steel plants under SAIL at Bhilai, Bokaro, Burnpur, Durgapur and Rourkela, Shri Mukherjee said, had produced 4,746 million tonnes of saleable steel during 1980-81, exceeding the previous year's production of 4,592 by 1. 54 lakh tonnes. Shri Mukherjee said that the production plan for the current year envisages, 5.73 million tonnes of saleable steel, 1,424 million tonnes of saleable pig iron and 7.21 million tonnes of ingots.

Elaborating the steps taken by the Ministry in the last few months with a view to making iron and steel materials more freely available to the industry and the general consumers, the Minister said that after the price rise for pig iron and steel materials allowed in the beginning of February 1981, items like semis, bars and rods were taken out of JPC control. As a result, the prices of these items were fixed according to the market conditions. With the same objective in view there had been substantial liberalisation in the new import policy whereby a number of steel items had been put under open general licence and would now be more freely available to the consumers. □

Air Force Scheme of Disabled Children

To mark the International Year of the Disabled, the Air Force Benevolent Association has introduced a new scheme to grant a sum of Rs. 1000 a year for three years for the purchase of medical aids for physically handicapped or mentally retarded children of serving Air Force personnel. They will also receive a monthly grant of Rs. 100 each for three years to meet expenses on specialised education to mitigate their disability. The Managing Council of the Association which met in New Delhi recently also decided to give an increased exgratia grant to daughters of service personnel who die in service. The amount of ex-gratia will be Rs. 2000 in case of daughters of officers and Rs. 1000 in the case of those of airmen. The Rehabilitation Grant given by the Association to airmen discarged on medical grounds has been increased from Rs. 1,200 to Rs. 2,400. □

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BOOKS

Organising the Rnral Women

Role of Women in Rural Development—A study of Mahila Mandals, by S. P. Jain and V. Krishnamurthy Reddy, National Institute of Rural Developmeent, Hyderabad : Pages 93, price Rs. 16.

AS most of the rural life in India centres around women folk, it is legitimate to expect that women's organisations in these areas would be of considerable significance. Guided by this objective, the Department of Rural Development, Ministry of Agriculture and Irrigation sponsored the present study to collect field date and gather public reaction on the organisation and to suggest ways and means for making them more effective. The present publication is the result of this sponsored study.

Presently, the Mahila Mandals have been engaged in many diverse activities. In the beginning, the main emphasis was on child care, health and nutrition, promotion of home crafts and subsequently family welfare, adult education, cooperative sanitation were added to their activities. Now they are also expected to make an impact as far as kitchen, gardening, family welfare and such other activities are concerned. In order to evaluate the impact of the various Mandals in diffeffernt states in such activities, the project collected data from 15 Mandals in the states of Gujarat, Jammu and Kashmir, Orissa, Punjab and Tamil Nadu. The coverage was confined to aspects such as administrative structure and functioning, social composition, finances and activities. The information was elicited both by questionaire as well as interview methods. The administrative relationship between the various wings of the government working in this area does not seem to be very effective. In some of the states there is little coordination between agencies/departments concerned and the Mahila Mandals. The survey revealed that most of the Mahila Mandals have no constitution or rules and regulations for the conduct of their business. Even in those Mandals where there is a constitution, procedures were seldom observed. The membership during the last few years has not shown any appreciable increase. In some of the Mandals, Scheduled Caste and Scheduled Tribes showed significant representation. The income pattern of these Mahila Mandals indicated that 6 out of 15 Mandals mobilised their own resources while the rest relied solely on the grant received from the government for the implementation of different programmes, and most of the expenditure was incurred on construction and payment of office-bearers. An interesting finding of the report has been that "At times, it was surprising to find these women discussing freely the family planning methods with an outsider and that too a male Needless to say, the Mandals had played a significant role in bringing about this awareness."

The study may be useful to the government for re-orienting and making the programme effective and for directing their financial resources to the productive activities of these Mandals.

Ganga Madhava Rao

Investment Climate

Convertibility Clause & Investment Climate : by S. Jayapandian an IFMR Survey : Madras 1980; Pages 68; Price Rs. 15.

THIS booklet is a factual survey by Prof. Jayapandian of the conditions prevailing in the Indian investment market and how the convertibility of loans granted to industrial units by public financial institutions into equity has influenced the capital market. The survey was done on behalf of the Institute for Financial Management and Research, Madras.

Although it can be argued in favour of the convertibility clause from a narrow socio-economic point of view, in actual practice however, the clause appears to have done more harm than good to industrial development let alone investment climate. No doubt, the conditions have been relaxed now making it obligatory on seekers of loans of Rs. 1 crore or more as against the original limit of Rs. 50 lakhs to have the convertibility clause written in the loan agreement. Even so, the capital market has remained shy; and the learned author does not probe into the actual reasons why.

There is something to be said in favour of the argument put forth by the private sector that the convertibility clause in loan agreements is a subtle way of nationalising on-going schemes through the back-door. The author has not countered this view at all. He might have been handicapped in more than one way. But in a serious paper coming from him who has considerable experience of development finance, one would have reasonably expected him to have developed a little deeper into the whole dynamics of such lending instead of looking at the problem purely as a chronicle of events.

Practically speaking, it is abundantly clear that in the ultimate analysis the convertibility clause has definitely damaged the enthusiasm and initiative of the private entrepreneur. Since at present 90 per cent or more of the loanable funds are controlled by the 20 nationalised banks under government ownership and control, the private entrepreneur has no other alternative but to swallow the bitter pill. Whether such management of the investible money has served any meaningful or beneficial socio-economic purpose by generating a healthy investment climate remains a debatable point. On this the author unfortunately has not thrown any light although one would justifiably have expected him to give some original throught to this aspect of the problem.

—E.P. Radhakrishnan

Public Expenditure

Economics of Public Expenditure in Karnataka by M. C. Shanta Murty; published by the Department of Economics, Sri Jagadguru Renukacharya College of Science & Arts., Bangalore—560009; Pages 28; Price Rs. 5.

THIS slender volume attempts to cover the pattern of public expenditure in Karnataka from 1957-58 to 1978-79. The author has examined the causes responsible for the rapid growth of public expenditure and has suggested the appointment of an Expenditure Committee to evolve guidelines for formulating a suitable public expenditure programme in the State.

According to the author, the non-development expenditure has been registering a remarkable increase in the last two decades. While it is true that the non-development expenditure has been at the cost of development expenditure, I am afraid how far the suggestions made by the author for slashing down the wasteful, unproductive expenditure on non-development account could be implemented.

Care should have been taken to eliminate the large number of printing mistakes in the book.

S. S. Rao

Our National Bird

Peacock—Our National Bird—by Ajit Kumar Mukherjee; Published by the Director, Publications Division, Patiala House, New Delhi; Pages 49 : Price Rs. 6.

PEACOCK, our National Bird, is the most colourful of all the birds and attractive too. Children and common men keep its feathers to decorate the house and do not have any idea of the bird beyond this. Of course, Hindus know that Lord Krishna adorned his crown with its plumes. But most of them are ignorant of the habits, history and economics of the bird and its place in art and literature. Exactly these are the aspects vividly, though not exhaustively described in this small book.

Ancient Sanskrit and other literature abounds in copious references to the enchanting bird and its intimacy with the human beings. It had been a messenger of love and had given its company to the lover and the beloved. Throughout the Indian history peacock has been adorned by the people. For Mughals, it was a family bird. Emperor Shahjehan was so much enchanted by the bird that he used to sit in a splendid throne in the form of a pair of peacocks studded with precious stones. This is the famous "Peacock Throne" for the possession of which many a ruler fought bitter battles.

The book, describing the magnificant creation of God Almighty, that is peacock, is printed on a beautiful art paper, narrated in lucid style with some attractive photographs studded at various places.

R. R. Rao.

Investment Management

Investment Management : Introduction to Security Analysis : S. L. Simha, D. Hemalatha and S. Radhakrishnan Institute of Financial Management and Research, Publication No. 25, Madras, December, 1979, Page XV+810, Bibliography, Index, Price Rs. 100.

THIS is a highly instructive book on Indian stock market, written by a well-known economist of our country in collaboration with his two colleagues. Books on Indian stock market, which are few and far between, have been written as elementary textbooks. The present one is still a textbook but written in far more competent style and orientation. It has serveral distinguishing features which must be pointed out. It is far more comprehensive. Functioning of stock market is immensely complex and at the same time much less is known about it than about other markets. Prof. Simha and his colleagues have taken cognizance of this fact and analysed the technical features of the market to the fullest extent. Unlike the existing books it avoids repetitive description of the official institutions. Instead, it analyses the economics of the various forms of the financial instruments other than securities. Chapter Fourteen not only educates the general public regarding efficient use of their savings but also highlights the comparative profitabilities of those instruments. This helps in assessing investment and/or speculative character of the market. It is the first book in India which discusses Portfolio Theory (Chapter Sixteen) and Portfolio Management (Chapter Seventeen). In fact these two chapters alone elevate the book above the level of a text book. Investment management presupposes expertise in interpreting yield and cost of a security and knowledge about determinants of return. The latter is particularly essential for forecasting stock prices and stock yields. These form the foundation of optimum portfolio which may be defined as assortment of assets carrying maximum return and minimum cost. In other words, an optimum combination is possible only if forecasts are accurate; forecasting is accurate when determinants are identified correctly; determinants are identified with reference to yield, return and cost parameters. Prof. Simha has explained precisely these facts. Therefore, the book will optimally serve financial managers, graduate-level students of financial economics and the informed public.

The following two suggestions, may enhance the academic content and practical utility of this book.

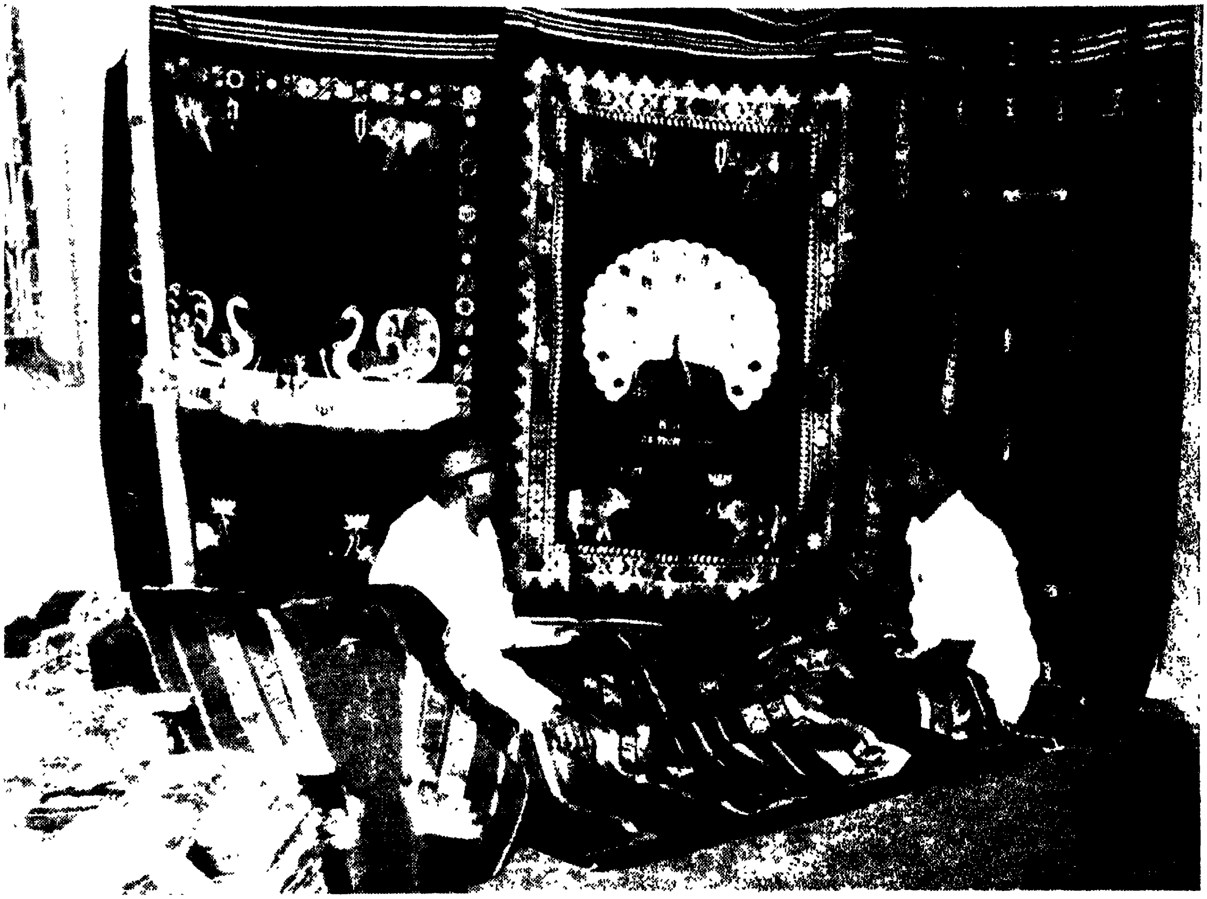
The book deserved a chapter on New Issue Market. The public is generally more eager to know about the economics, functioning, rules and methods regarding floatation of new securities. It has an impression that they are more easily accessible while in fact they are not. Published data on volume of new issues, extent of subscription, premium and discount buying/selling are available. They could be put to examination for demonstrating the functioning of this market. There could have been another chapter on Share Price Movements in India which would examine fundamentalist, technical and random walk mechanisms even if cursorily. Particularly the current craze for random walk testing is too strong to be resisted. Passing reference is made to it on pages 667. Elementary testing, say in terms Runs analysis would be welcome feature of the book. The authors themselves very correctly enlisted factors which a priori weaken random walk possibility in Indian stock markets. This reviewer has a number of results to support this thesis (especially auto-and cross spectral results). As part of the second suggestion it may be mentioned that there is need for a section; reviewing the existing (some 20) studies on Indian share prices.

Suresh N. Kulkarni

Correction

In our issue dated 1—15 April 1981, the name of the reviewer of the book 'Inventory Management' has been inadvertently given as S. N. Kulkarni instead of Qamaruddin Khan. The error is regretted.

Editor



Shimmering silk carpets for sale.

Carpets for Foreign Markets

A traditional weaver at work.

TRADITIONAL carpet weavers who adorn Bhavani Taluk, in periyar district of Tamil Nadu are manufactures of high class cotton and silk carpets, towels, lungis and bed sheets. These weavers of Bhavani are called Pandarams. One of the firms of Bhavani, run by Shri Mallaiyaraju of Kuppuswamy Pandaram & Sons, and has been exporting their products to African and Gulf countries and also to USA. Most of their products are sent through All India Handloom Fabrics Marketing Society Limited, Bombay. Being a member of All India Handloom Export Promotion Council this firm has enough work for 20,000 employees covering ten villages. Their daily wages range from Rs. 3.50 to Rs. 10 depending upon the quantum and size of work. ☐

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Minimum Needs Programme in Maharashtra

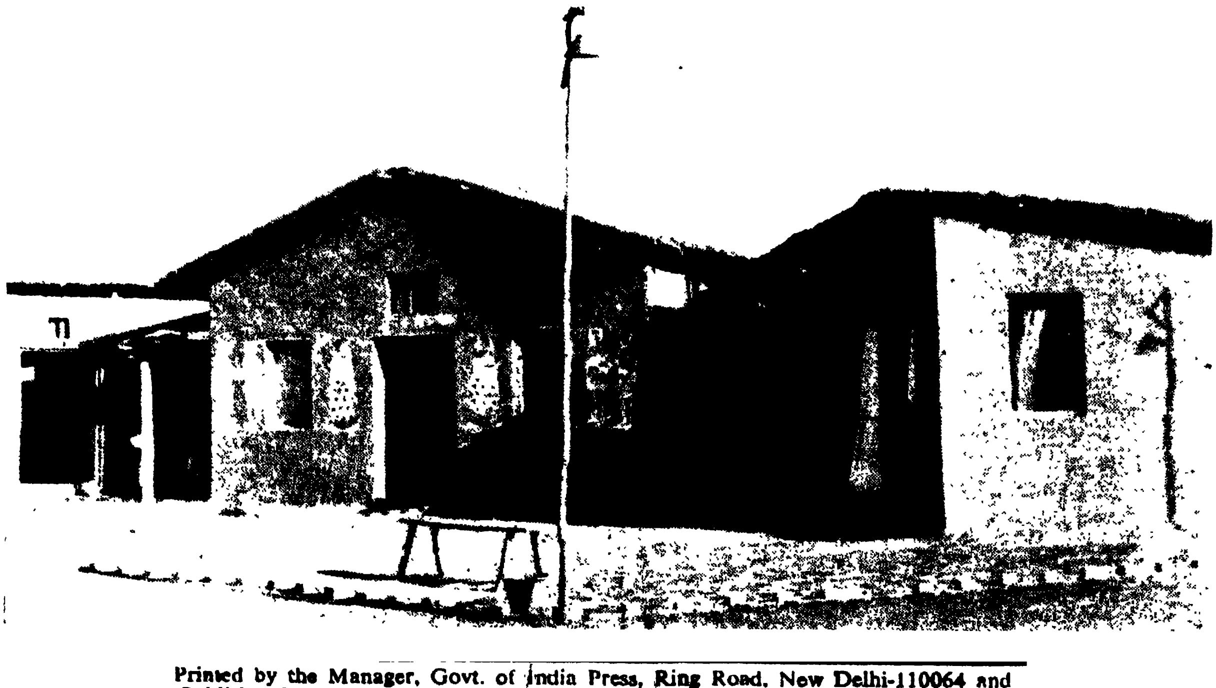
THE Minimum needs programme for bettering the lot of the poor is making a good headway in Maharashtra. The provision of direct and free services such as elementary education, housing assistance, better nutrition, rural health, rural roads, rural water supply, slum improvement and rural electrification are envisaged under this programme. The State's Sixth Five Year Plan outlay for this sector is Rs. 5800 crores-12 per cent more than the outlay in the previous plan. Reinforced by other rural development programmes M.N.P. is designed to eradicate poverty in the State where a little less than 50 per cent of the population lives below the poverty line. This in turn would help improve the consumption level of the poorest and increase their productive capacity. The implementation of this programme is also aimed at reversing the migration of people from the rural to the urban areas.

A large number of people from backward areas are benefiting from this programme. The case of a young man, Haribhau Jadhav of Bhiwandi taluka, bears testimony to this. His father died when Haribhau was very young. The family of five left behind could hardly make two ends meet. But Haribhau kept pursuing studies in a nearby school. Meanwhile, facilities like road, health centre, and supply of potable water were extended to the village. He utilised his spare time in running a tea stall or fetching wood and other forest products. Later on Jadhav was allotted two acres of land. This along with other schemes for helping the poor raised his hopes. He availed of all the chances and purchased a pair of bullocks with a loan granted by a nationalised bank. The land, the bullocks and the tea stall on the road side have brought a new ray of hope and pride in the life of Jadhav and his family.

Haribhau Jadhav with his bullocks.

Similarly there is resplendent charm and glitter of joy on the face of another young man, Keshav. Coming from a backward area of Thana district and possessing over three acres of land he never let despondency divert him from the path of progress. Soon after the village had a link road he took advantage of a government scheme to get himself a bullock cart. Besides the income from the land, he now earns upto Rs. 25 a day by carting bricks at the nearby kiln. He talks with pride about the future and looks forward to the time when his children will go in for higher education and bring more joy and fulfilment to his life. ☐

A village dispensary.



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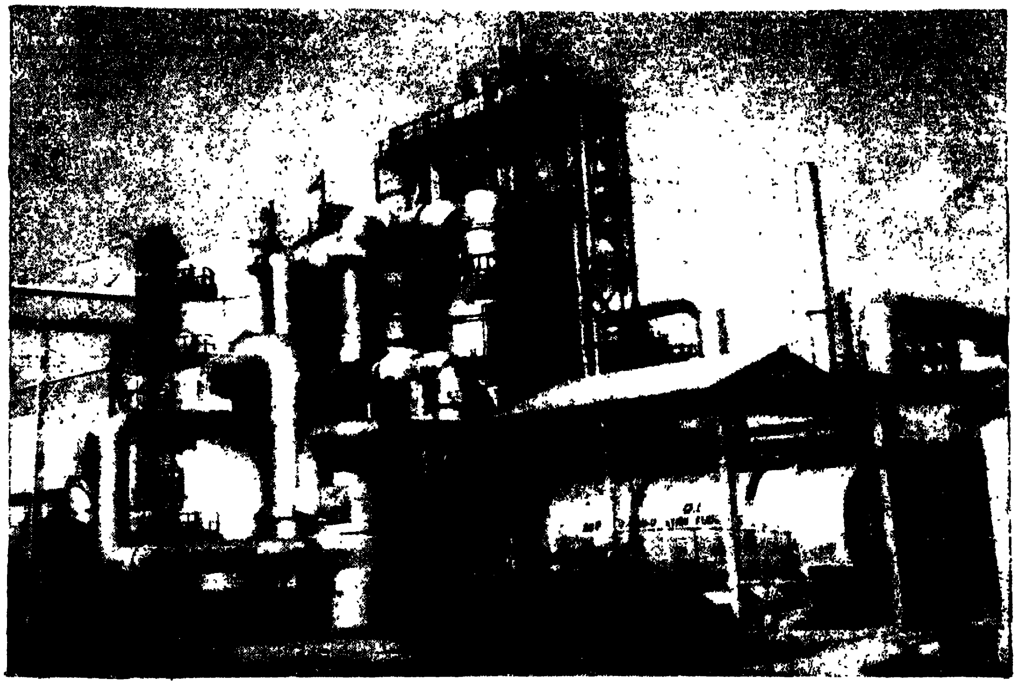

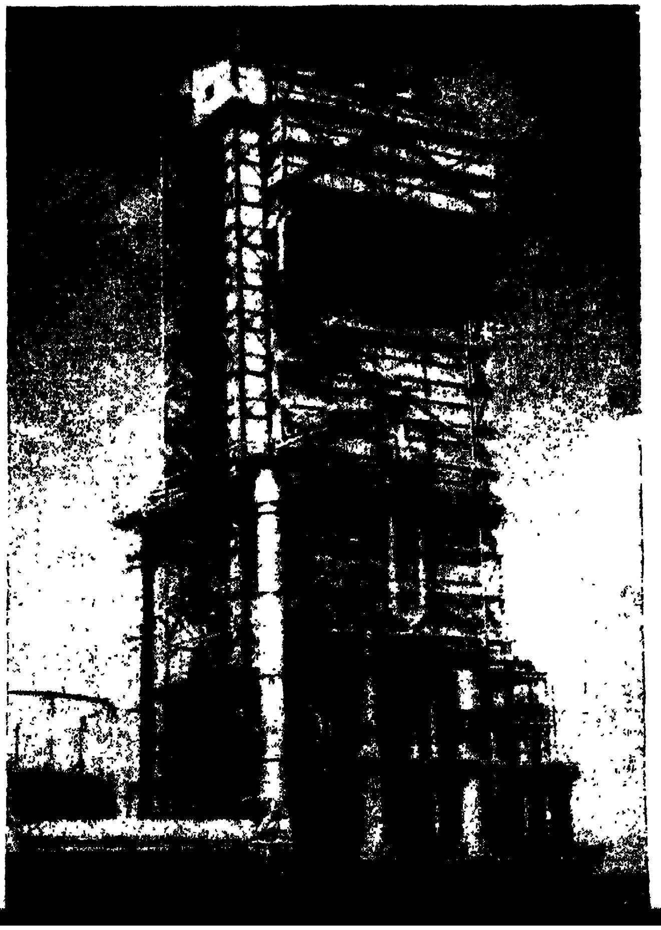

Labourers receiving foodgrains as part of the wages.

National Rural Employment Programme

THE National Rural Employment. Programme is the biggest single target-oriented rural programme in the plan with an outlay of Rs. 1,000 crores. During its four years of operation, it has created assets worth hundreds of crores of rupees and potential for long-term employment of lakhs of villagers.

In the sleepy Nathadiyur village near Erode in Tamil Nadu, the dilapidated mud huts housing the families of scheduled caste agricultural labourers have given place to tile—roofed modern tenements with kitchen and bath room facilities, thanks to the incentive given by the National Rural Employment Programme (NREP). Thingalur and other 15 villages had been cut off from each other. Here again the NREP bridged the financial gap. The wage component was taken care of by the programme and the Panchayat Union mustered Rs. 27,000 from various sources. Result ? A motorable road. A Rajasthan village had been ravaged by floods every year. The food-for-work (FFW) programme came to their rescue. A simple bund was constructed at a cost of Rs. 5,000. Now the village is pregnant with lush green fields.

Examples like these can be multiplied. During its four years of operation, the scheme created assets worth several hundred crores. Recognising its value, the programme has been placed on a firmer footing as a Rs. 1000 crore Sixth Five Year Plan scheme. It is no longer a mere food-for-work programme operating in a year of good harvest but has become the National Rural Employment Programme.

Poverty and Direct Attack on it

The most effective means of reducing the rigours of poverty and income inequalities is employment. In the early seventies, the economic development strategy was reformed to make a direct attack on poverty. Special target and area—oriented programmes such as the small farmers development agency, the marginal farmers agency, drought prone areas programme and others were put on the ground with this aim. The upturn in food production facilitated the introduction of the food for work programme in mid—1977.

Continued on cover III

YOJANA

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Editorial

Development of Backward Areas

SINCE a long time our planners have been conscious of the need for balanced regional development of the economy. In 1967 the National Development Council decided that special steps should be taken for industrialising the backward areas. But concrete action in the form of subsidy on investment in such areas was taken only in 1971. The quantum of subsidy was raised in 1975. Out of 247 backward districts or areas, 103 qualify for this assistance. But the scheme by itself could not make much headway in developing these areas. The big public sector plants established in backward regions, without organic linkage with ancillaries, could not also spread their benefit in the hinterland. Subsequently, the previous Central Government introduced the scheme of District Industrial Centres. This scheme, with its bias for labour-intensive units and exclusion of big modern industries, could not be successful.

It became obvious from practical experience that finance alone was not enough to develop a backward area. Infrastructure facilities, entrepreneurship, availability of local resources, facilities for training the local manpower, adequate credit and marketing facility are also essential for enduring success. The National Committee on the Development of Backward Areas has made valuable recommendations in this regard. Its most important suggestion is to provide linkage between big industry and small units through ancillarisation. The Committee's recommendation to set up 100 growth centres in the already urbanised localities in backward areas during the Sixth Plan should be effectively implemented. The Centre is already helping to establish such nuclear industrial centres. But most of the States have not yet shown enhusiasm in taking advantage of this scheme.

A committee of secretaries of the Central Government is now considering further incentives for speeding up the pace of industrialisation in the backward areas. According to press reports, these incentives may include transport subsidy and import of equipment on concessional terms. The disbursement of investment subsidy has also been increasing —it has risen from Rs. 15.4 crores in 1978-79 to Rs. 30.7 crores in 1980-81. Provision of credit at concessional rates, as suggested by the National Committee, should also be provided. It is further necessary to ensure regular flow of orders from the big to ancillary units and fair price and prompt payment for the products of the latter. ☐

Special Article

Foreign Exchange Resources for the Sixth Plan

G. Srinivasan*

THE pre-budget Economic Survey (1980-81) tersely stated that management of the balance of payments would demand greater recourse to external financing now than has been the case in the recent past, though it wanted the Government to ensure that such recourse to external financing was 'kept within limits of prudent debt management'. The survey's prognosis has been true as the country is currently seeking out desparately foreign commercial borrowings on a massive scale to finance its Rs. 1,72,210 crores Sixth Plan. The recent Government announcement (october 28, 1980), relaxing the terms of investment by Arab investors in the Indian economy and the country's triumphant entry in the Euro-dollar market for loan to the aluminium project in Orissa and development facilities for the Bombay High by the Oil and Natural Gas Commission (ONGC) are definite signs that the Government is determined to dimnish restrictions and rigidities in licensing, exports and imports, foreign investment and external borrowings. In the private sector, Tata Steel had successfully negotiated a 200 million dollars loan with the World Bank and a syndication of British banks. Besides, it is highly likely that the proposed export-import bank (EXIM BANK), which was recently approved by the Parliament, may go to global capital market to reinforce its capital base so as to finance, promote and develop the country's trade at a time when the adverse trade balance is staggeringly heavy. India's foreign trade figures for the first eleven months of 1980-81 (April-February) reveal that exports were Rs 5915.26 crores and imports Rs. 10,608.78 crores with the trade balance being a whopping Rs. 4,693.52 crores, compared to the previous year's deficit of Rs. 1899.49 crores for the corresponding period.

Aggregate Resources

The aggregate resources for the Sixth Plan are placed at Rs. 1,72,210 crores, comprising an investment outlay of Rs. 1, 58,710 crores and current development outlay in the public sector of Rs. 13,500 crores. The investment outlay is to be met through domestic saving of Rs. 1,49,647 crores and net inflow of funds from abroad to the tune of Rs. 9063 crores. The assumed net inflow of foreign funds of Rs. 9063 crores constitutes about 10.2 per cent of the total public sector outlay. The Plan assumes that foreign exchange reserves would be drawn down to the tune of Rs. 1,000 crores during the Plan period, especially when such reserves at the end of 1979-80 stood at Rs. 5,164 crores, excluding Gold and SDRs.

The net inflow of external assistance to the tune of Rs. 9,063 crores is arrived at in the following manner :

	Rs. in crores.
Net Aid	5,889
Other borrowings, including commercial borrowings and other capital flows	5,087
Drawals of foreign exchange reserves	1,000
Total	11,976
Depletion on resources due to terms of trade deterioration	(—)2,913
Net inflow	9,063

But if the pre-budget economic survey is any pointer it is highly unlikely whether the net aid could be Rs. 5,889 crores for the five years as assumed by the Plan. According to the survey, net external assistance received by the country has been steadily shrinking since 1976-77. From Rs. 1,154 crores in 1975-76, it declined to Rs. 844 crores in 1976-77, to Rs. 469 crores in 1977-78 and further to Rs. 384 crores in 1978-79. The assistance however rose to Rs. 483 crores in 1979-80. While the 1980-81 budgetary estimates placed net external aid at Rs. 1,459 crores, inclusive of Rs. 541 crores from the IMF Trust Fund loan, the revised estimates for 1980-81, as recorded in the 1981-82 Union Budget, placed it to the tune of Rs. 1,352 crores, though the decline is only marginal For the cuurrent fiscal year, external aid (net) is assumed to be only Rs. 1,000 crores. The scaled-down expectation in external loans for 1981-82 to Rs. 1,000 crores has been made at a time when the foreign exchange reserves of the country are on the wane. India's foreign exchange reserves (excluding Gold and SDRs) were Rs. 4,654.76 crores on April 24, 1981, the lowest in 1981. What is of particular concern at the moment is that the external climate for both trade and aid is none too conductive on account of persistence of protectionist sentiments the world over and tight money policy being hotly pursued by aid-disbursing advanced nations. As the country is confronted with the daunting task of mobilising the need finance to implement the plan, borrowing on commercial terms seems to offer a fair chance of loan procurement, especially as the country enjoys a high credit rating in the international capital market.

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* Economic Division, PTI, New Delhi.

Besides commercial borrowings, the country can still hinge upon such traditional aid associations as the World Bank and the Manila-based Asian Development Bank. The World Bank, whose report on Indian economy would be circulated before the Consortium meetting in Paris in June, is of the view that India should step up exports, avoid imports that can be produced economically at home, mobilise and then utilise aid at a faster rate and borrow more on non-concessional terms. Export performance, the World Bank views, is the crucial element in determining India's strategy of obtaining the needed foreign exchange resources to finance its ambitious Sixth Five Year Plan. The World Bank strongly favours that India should be conferred on the same level of external assistance this year as was committed for 1980-81 (3.4 billion US dollars); but in real terms, an increase to counter-balance the inflation rate rise must be of overwhelming necessity, from the country's viewpoint.

Yet another avenue now seems to open up is the ADB, whose potential has not been fully tapped by India so far. The lofty policy of self-denial of ADB loans so far is being reconsidered especially in the wake of the country's myriad unfulfilled needs and the possible claims on the Bank's resources by China, which is yet to formally enter the Club.

Although a huge IMF borowing is still under negotiation, the country may not be overly interested in subjecting itself to the harsh dictate of devaluing its currency to qualify for the IMF loan as has been prescribed by the premier lending institution.

The country can also largely lean on the petro-dollar market, as of today the inflow from this strategic and significant source remains insignficant, considering the clout country enjoys with most of the Arab nations. During 1979-80 and 1980-81, so far India obtained 144 million dollars as loans or credit from the Middle East. This included 20 million dollars each for the Korba and Ramagundam thermal power projects from the OPEC Fund and the remainder as oil credit from the Iraqui Fund for External Development. The realisation of more aid from the OPEC Fund coupled wih the recent overtures made to Arab investors for joint venture participuation in the Indian economy are biund to go a long way in ensuring a steady and sustained flow of assistance for finacing the foreign exchange component of the Sixth Plan.

In the eventual analysis foreign exchange resources could be sizeably built up, if only there is a dertemined drive to tap the country's export potentials. In fact, underlying the need for an annual growth rate of 10 per cent in export earnings in real terms during the 1980s, the Tandon Committee has made several worthwhile recommendations, the implementation of which is bound to beef up the countrys export earnings and narrow down the dizy trade deficit. Among other things, measures must be undertaken forthwith to ensure accessibiliy of raw materials and components of acceptable quality to exporters, provide more incentives to all exporting units, irrespective of whether they are exporting wholly or partly of their production, introduce improved packaging, simplify procedures for settlement of claims, permit restrictions imposed on larger units to be confined only to domestic production activities and not in case of production for exports and extend fiscal concessions for encouraging investment in export production, as was suggested by the Tandon Committee.

A sustained and vigorous export promotion must perforce be launched with the objective of obtaining adequate expansion in exports. This needs to be supplemented by a rapid rise in domestic production of oil, steel, fertilisers, vegetable oils so as to bring down burgeoning growth of imports in order to maintain viability of our external payments. In the eventual analysis, as was succinctly called for by the plan document that 'export promotion is as much part of the drive 'or self-reliance as efficient import substitution', all out effort is required to replace imports in critical areas where there are abrupt and swift changes in prices and availability.

Though borrowing on commercial terms may offer scope for obtaining foreign exchange resources, it is not a substitute for a stepped-up effort in the export front. In fact, India's policy in regard to borowing on commercial terms has by and large been restrictive in view of the overriding need to keep the country's indebtedness within manageable limits and to maintain our ability to service the foreign debts. Debt service payments comprising amortisation and interest amounted to Rs. 884 crores in 1979-80 and this has siphoned off as much as 65 per cent of gross aid receipts. If such a heavy levy is exacted out of the country's aid receipts by the growing volume of debt service payments, it would be highly prudent to make only selective use of the opportunities of brrowing abroad especially for financing projects which have a high rate of return and are also to reinforce the country's expert capability. ☐

Cheap and Best Food

Indira Gopalan*

DESPITE good strides made in the production of foodgrains, milk, meat and other items, still the common man faces the question how to get most nutritious food at the least price.

What exactly we mean by best nutrition? "Good Nutrition (and thereby health) is that state of physical and mental well being when a person is able to function at his most best". To achieve this desired state of best physical and mental well being we have to derive a number of nutrients from the food we eat.

Important Nutrients

Energy is the largest 'nutrient' in terms of quantity that our body gets from food. The body needs energy for its various functions whether awake or asleep. The Indian Council of Medical Research has suggested that an average Indian man needs about 2400 calories of energy for a normally active life. The need is higher if the person is more active or pregnant etc. Food items like cereals, millets, tubers, oil, pulses, meat, eggs, milk, supply the energy.

The second important nutrient is protein. Every cell, is made of proteins. The maintenance and repair of the body is taken care of by the proteins. All kinds of pulses, meat, fish, eggs and milk have proteins Generally the most expensive nutrient in terms of money is protein.

Food also has to supply some other nutrients though in much smaller quantities. These are the various vitamins and minerals. Vitamins and minerals are essential for regular body activities, maintaince of specific tissues and organs.

Balanced Diets

The common Indian diet is basically well balanced and supplies all needed nutrients in apporiate amounts. Our staple is usually a cereal or millet- -rice, chapati: the meal made up of some dal and vegetables. The addition of some milk or curds, if possible an egg or a little meat and a few green would make the traditional Indian diet nutritionally superb !

The ICMR has recommended a pattern of balanced diet which can supply all the important nutrients. This diet is based on data of traditional meal patterns, nutrient needs of our population etc. Such a balanced meal suggests that an average Indian doing moderate work needs to eat each day, at least, 520 gms of cereals, 50 gms of pulses, 40 gms of leafy vegetables, about 140 gms of other vegetables and tubers, 200 ml milk, 45 gms of oil or fat and 35 gms of sugar or jaggery. To eat a daily diet of all these items the man must be able to spend about Rs. 3.50 per day on his food. However surveys have revealed that only those who have a per capita income of over Rs. 150 per month are able to spend this amount on food. Only about 30 per cent of Indians fall into this category. This diet however was found too bulky particularly because people in our country usually distribute their daily fare in three main meals or even less.

A modified balanced diet as shown below was suggested to overcome this problem.

Food stuft	**Grmas**
Cereals	500
Pulses	60
Vegetables	300
Milk (curds etc.)	100ml
Oil	30
Sugar	40
Meat/fish or egg	30
Groundnuts	30
Cost	**Rs.** 30
Nutrient Content	
Calories	2800
Protein	84g
Fat	55g
Calcium	0.8g
Iron	48 mg
Retinol (Vit. A)	900/ug
Thiamine	2.0mg
Riboflavin	1.3mg
Distribution	
First Meal	
Rotis	5
Dal with vegetables	2 bowls
Curd	¼ bowl
Lime	½
Lnnch	
Rotis	2
Dal with vegetables	½ bowl
Tea	1 cup
Tea	
Tea	1 cup
Roasted groundnuts	2tbsp
Dinner	
Rice	6 bolws
Vegetables and meat	3 bolws
Butter milk	1 cup
Pickle	a piece

The National Nutrition moitory Bureau has collected data of the diet patterns in 10 states of India. Their survey found that the diet pattern of people more or less confirmed to the pattern suggested by the ICMR. However some items were eaten in quantities much less than that recommended. These included oils, fruits, green leafy vegetables and flesh foods.

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*Assistant Research officer, National Institute of Nutrition, Hyderabad

In terms of nutrient need it is found that on an average Indians get more proteins than recommended. Their calorie intake is slightly lower than needed. While calcium and iron intake is more or less satisfactory, vitamin needs are unfulfilled to a large extent. This is understandable in view of the fact that people are eating less than recommended amounts of greens, fruits and vegetables. A slight improvement in the oil or fat content or common diets would perhaps make up the calorie deficiency.

Low Cost Meals

Now the question is how to cut costs? Let us take the staple food for example: we need to eat about 0.5 kg of cereal per day. This is the bulkiest item in the diet and it is the staple. The most popular staple in our country is either wheat or rice. But compared to these there are a number of millets like Jowar, Ragi, Maize, Bajra-which are very nutritious and at the same time much cheaper. About one third of the daily cereal can be substituted by a cheaper millet. There are a number of traditional recipes which are quite tasty when made of these less popular cereal flours like jowar, Bajra, and ragi. This is one way of making the rupee stretch.

The best way to get the most nutrients from pulses is to sprout them. Sprouted or malted pulses have more vitamins than ordinary dry dhals. Sprouted gram is tastier, bulkier and more susceptible to make many dishes. It is also easier to digest

Dishes made of cereal and pulse mixes give the best kind of proteins or body building nutrients. Thus it is good to have dishes like kitchidi, Pongal, Dhokla, Dosai or Idli in the menu. In fact a cereal-pulse mix is as nutritious as foods of animals origin.

Seasonal vegetables are cheap and nutritious when eaten fresh. The cheapest greens like palak, amaranth, drumstick leaves contain larger amounts of iron and vitamins than costly vegetables. Minimum cooking using minimum water makes the vegetable nutritious. An egg a week gives a package of nutrients at the least possible cost. The seethaphal, sapota, guava, mango, papaya, banana are much more nutritious than the more expensive grapes or apples. Sugar and jaggery give us precious calories. However jaggery also gives us iron. Sweet dishes can be made using jaggery rather than sugar. A handful of roasted groundnuts are loaded with proteins, calories and B Vitamin. Milk is the most precious item and the most wholesome food which should be a must in the daily diet of every one. ☐

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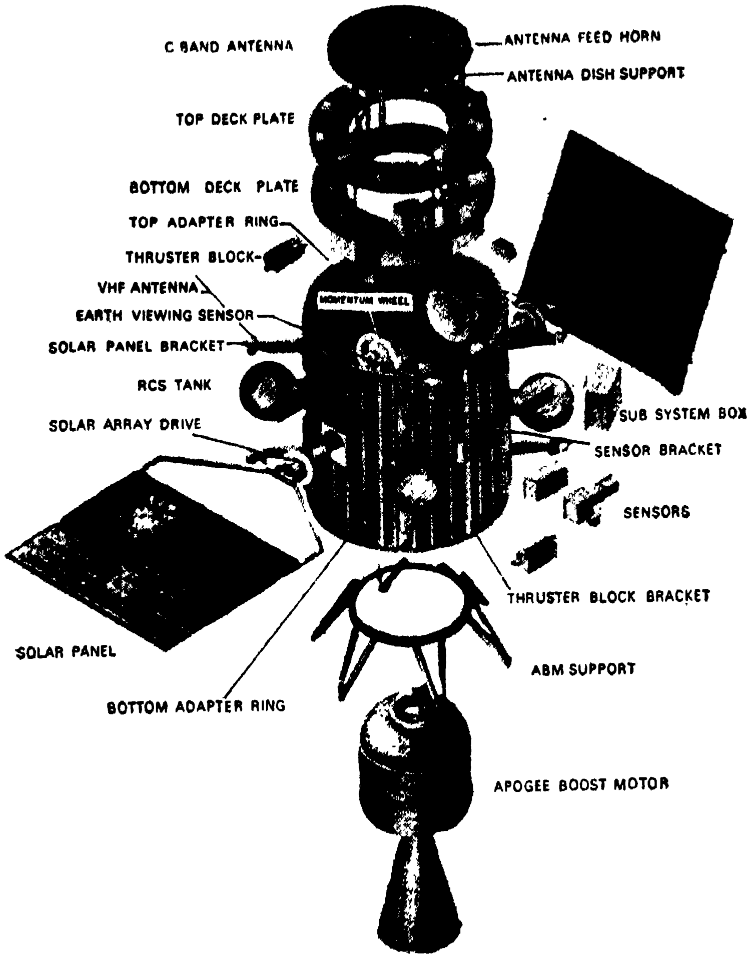
Special Article

Apple First Indian Experimental Communication Satellite

R. M. Vasagam*



Dissembled mode of APPLE

SPACE Communication Systems using geostationary satellite for nation-wide television broadcast and telesystems communication services and space-borne remote sensing systems for earth resources monitoring by means of polar sub-synchronous orbits are two primary goals being pursued by the Indian Space Research Organisation (ISRO) in its efforts to harness space technology for national development The APPLE Spacecraft being readied for launch in June 1981 by the third developmental flight of ARIANE, the launch vehicle being developed by European Space Agency (ESA), symbolises the efforts of ISRO to master the state-of-the art techniques in designing, building, launching and operating 3-axis stabilised geostationary communication satellites with driven deployable solar arrays and orbit transfer/orbit and altitude control propulsion systems.

APPLE, acronym for Ariane Passenger Patransead Experiment, was conceived when invitations to fly passenger payloads, free of cost in ARIANE Launch-Vehicle Development Flights were sent out by European Space Agency in 1975. The ISRO proposal was selected in 1977 to fly as a sandwich passenger in the third developmental flight (L03) along with the METEOSAT—European geostationary meteorological satellite—and CAT—Ariane Technology Capsule—monitoring the vehicle performance. This imposed additional structural and envelope and interface constraints on APPLE. While designing the APPLE, the C-band Communication payload was made compatible with the ground segment already available through the earlier STEP (Satellite Telecommunication Experiment) conducted by ISRO using Franco-German Symphonic geostationary communication satellite and a utilisation plan to conduct communication experiments with Time Division Multiple Access (TDMA), Spread Spectrum Multiple Access (SSMA), TV with multiple audio and communication experiments with low-cost terminals and emergency communication was prepared by Space Applications Centre (SAC), Ahmedabad.

Prototype

The design and development of APPLE was carried out in the 1977-80 time frame and in all, five models—Structural, Thermal, Engineering, Prototype and Flight—were built and tested. The Structural and Thermal Models validated the structural and thermal design and the Engineering Model validated the design and overall functional performance of the sub-systems. Structural model was also qualified in the composite

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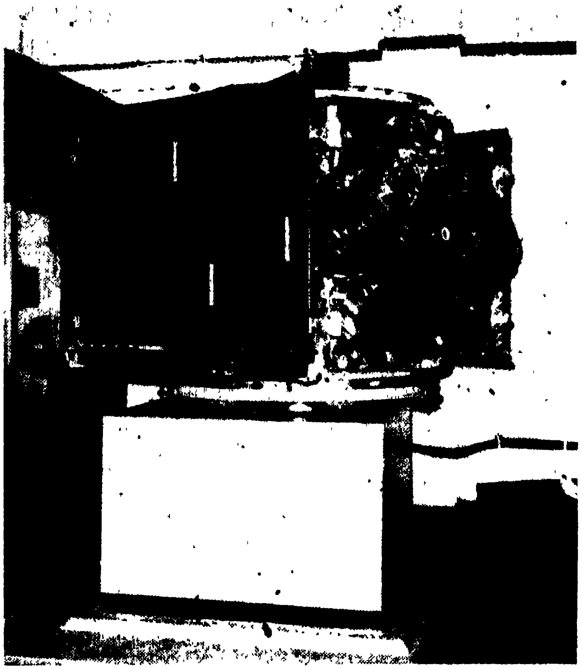
* Project Director, APPLE Spacecraft Project, ISRO, Bangalore.



Flight model of APPLE in the launch configuration with the solar panel stowed.

payload (CAT, APPLE, METEOSAT) configuration at CNES Facility, Toulouse, France. After incorporating the modifications arising out of the tests on these models the Prototype spacecraft was built and it underwent full qualification (1.5 times the flight levels) tests for vibration and thermovacuum environments. The flight model was integrated and tested to the Ariane developmental flight levels in India and subsequently acceptance tested at Toulouse, France, for combined dynamic environments with other passengers and electrical compatibility. Subsequently, it was moved to the Guyana Space Centre, Kourou, from where the launch will take place. Pre-launch operations were commenced from April 1981 onwards for launch in June 1981.

The APPLE Spacecraft design and development has been constrained by an extremely tight time schedule of about 36 months and maximum indigenous content consistent with this tight schedule has been achieved The Spacecraft Apogee Boost Motor (ABM) is an improved version of the fourth stage motor of the ISRO Satellite Launch Vehicle (SLV-3). It carries an indigenously developed Earth Sensor and Momentum Wheel along with imported space-qualified systems and employs a light-weight carbon fibre C-band reflector. The three axis control system with momentum wheels and hydrazine reaction control systems, driven, deployable solar panels and the power and telemetry, tracking and command systems and C-band communication payload developed for APPLE will pave the way for realising future domestic operational communication and remote sensing satellites. The details of the subsystems of APPLE Spacecraft, in the disassembled mode, are shown in figure on page 8.

Mission Operations Plan

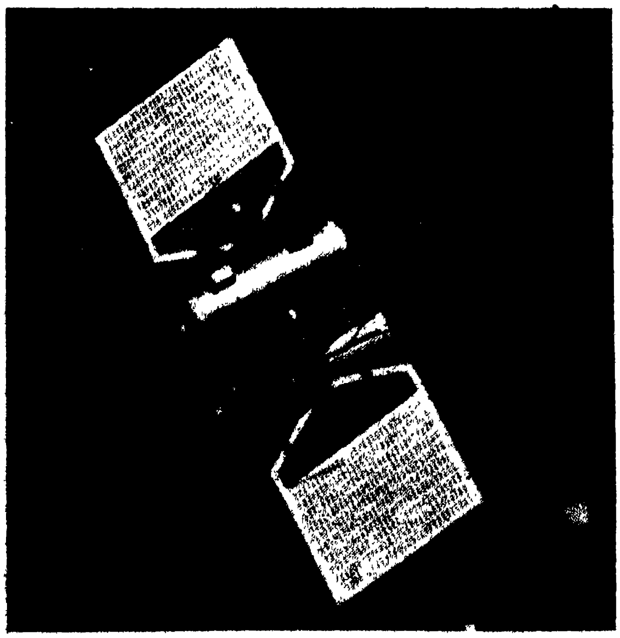
In parallel with the spacecraft development, efforts have been made for evolving mission operations plan for post-launch operations including orbit transfer (attainment of 36,000 Km. high circular equatorial 24 hour orbit from an initial 10,25 hour orbit or 200 Km perigee and 36,000 Km. apogee and inclined to equator at 10.5°) and attaining three axis orientation with deployed panels from the initial spinning configuration, performing Sun and Earth acquisition, orbit trimming and finally arriving at the assigned parking place of 102°E above the equator with the C-Band Antenna pointed towards the selected beam centre near Nagpur in India.

The ISRO Space Tracking Network (ISTRAC) with its Headquarters at SHAR Centre, Sriharikota in Andhra Pradesh along with the tracking support from European Space Agency will provide global tracking and commanding capability to perform these crucial manoeuvres, which may last up to three weeks. After the station arrival, the on-orbit checkout operations will be completed and communication payload operations will be initiated.

Realising APPLE

The Project Management and overall design and development (electrical, mechanical, thermal, control systems, integration and testing) of APPLE was carried out by the ISRO Satellite Centre (ISCA) at Bangalore. Vikram Sarabhai Space Centre (VSSC) at Trivandrum developed the ABM, Momentum Wheel, C-band Reflector and Solar Panel Deployment Mechanism. The Space Applications Centre (SAC) at Ahmedabad developed the C-band communication payload and SHAR Centre at Sriharikota, in addition to providing spacecraft and subsystem testing services, is serving as the focal point of space control operations for APPLE. Apart from the above ISRO Centres, major public sector industries like HAL

An artist's view of the APPLE in arbital configuration with the solar panels deployed and Tracking the sun.



(Bangalore and Nasik), DMRL (Hyderabad), BEL and Hegde and Golay (Bangalore), NAL and CIL (Bangalore) and ECIL (Hyderabad) have contributed towards fabrication of Structure, Mg alloy parts, electronics parts, screening and gold plates PCB making, etc. A number of small industries also have contributed to realising APPLE.

APPLE is a tangible proof of the success of ISRO-ESA cooperation in space related efforts. APPEL has also been conceived as a fore-runner to the second generation INSAT domestic satellite systems (the first generation of operational INSAT-1 satellites being bought from USA under the overall management of the Department of Space) as well as operational Indian Remote Sensing Satellite Systems. ☐

The story was written well before the APPLE was hurled into the space—Ed

Vanishing Tropical Forests

DEFORESTATION has reached a critical stage in India. Tropical forests are being deforested at the rate of 150,000 sq. km. a year. Statistics supplied by the Central Soil and Water Conservation Research Institute at Dehra Dun shows that during the last 25 years four million hectares have been defroested in the country and of this 70,000 hectares in the last three years alone. This has been disclosed by Mr. V. M. Meher Homji of the Institute Francais, Pondicerry, while speaking on "Development Without Destrcution' at a Science Conference organised by the Bangalore Station of All India Radio recently.

Mr. Heher Momji said that in the Himalayas, out of 1.5 million sq.km. of watershed, soil conservation measures were applied to only 11,000 sq.km. A flood in the Ganga basin in 1978 affected 43 million people with a loss of about Rs. 15 crore.

The area under forests, Mr. Meher Homji pointed out, was gradually shrinking because whenever there was a demand for more land for expanding agriculture, industries, rehabilitation programmes and establishing hydro-electric, mining or railway projects, the forests were the only victims.

The area under forests in the country was estimated at 75 million hectares, constituting about 23 per cent of the total land area. Only one-third of this area came under better preserved forests and the remainder was nothing but depleted shrub jungle.

Intensive destruction of forests in India, started towards the end of the 18th Century. Tea and coffee plantations were introduced on a large scale along the Western Ghats, in Darjeeling and Sri Lanka. Systematic exploitation of the timbers began about the same time.

Following the European settlements in India, the tropical teak was found to be a suitable substitute for the temperate oak for ship-building. In order to relieve pressure from the over-exploited oak forests, the teak forests of Malabar were the first to be taken over by the East India Company. In 1799 alone, 10,000 teak trees were cut in Malabar for Sri Lanka.

In North India, the sal forests were heavily exploited for the railways in the 19th century. The network of railways was expanded after the mutiny of 1857. Each rail track of 80 km. required 20,000 tonnes of wood almost exclusively of teak. Only a check was placed in 1924, enabling the forests to recover.

The two world wars in this century necessitated over-felling and prior to the abolition of proprietary rights, all the utilizable trees were exploited, thus destroying the forests that were even free from shifting cultivation.

Hornbeam Tree

As soon as research showed a new use of a particular species industry heavily exploited that species bringing about it near disappearance Recently, the hornbeam tree caught the attention of shuttle makers because research showed that its wood was suitable for it. The result was that a factory making shuttles wanted these trees growing in the remote hills of Tehri Garhwal felled. However, the local inhabitants, who know the value of the hornbeam tree in preventing landslides and providing fodder for cattle during the scarcity season, saw to it that this did not happen.

Realizing the disastrous effects of indiscriminate deforestation on the ecology of the hills, the U. P. Government has banned tree felling above an altitude of 1,000 metres.

Silent Valley

The humid evergreen forests of the Western Ghats, Mr. Heher Homji pointed out, were in a very delicate balance with the environment. Once cleared their regeneration was almost impossible. In the Silent Valley area, the grasslands were not showing any traces of progress towards the forest stage. There were four months of dryness. This had made the ecosystem fragile because the forest had to cycle its own minerals and the slightest interference resulted in an imblance.

Vegetation Map

The pondicherry Institute in collaboration with the Karnataka Forest Department, Mr. Meher Homji said was preparing a detailed vegetation map of Western Karnataka in order to provide suitable guidelines for forest mnagement. The forest Department, Mr. Meher Homji said, was interested in introducing some species of trees of economic value such as the clove tree from Africa and America. ☐

Women Labour in North East India

Dr. P. D. Saikia and Sri Kula Gogoi*

WOMAN discovered crop husbandry in the Neolithic period and has been taking active part in agriculture. Even in the present day world, woman's role in agriculture is not less important than man's. Women are generally exempted from doing certain jobs such as ploughing, cutting and felling of trees, climbing up trees for picking up fruits etc. But in tribal societies, women generally do most of these jobs too.

In India, one-fifth of the total labour of a family comes from women. One-third of the women labour of the family is engaged in agriculture. The general trend is that both educated men and women become averse to manual labour. Now-a-days in the rural societies, most of the educated women of the rich families are exempted from the agricultural labour. Besides, women of some particular castes and communities are not allowed to work in the field in spite of their deplorable economic condition.

Agriculture plays a vital role in the economy of Assam. Nearly 80 per cent of population of Assam is dependent on agriculture. According to 1971 Census the percentage of female workers of Assam is 7.9 of which 5.3 are agricultural labourers. The percentage of women working in livestock, forestry, fishery, tea gardenings and orchards is 49.4.

The Agro-Economic Research Centre for N.E. India, Jorhat has conducted surveys in some of the villages of the Assam State and it is observed that the number of female workers in these villages, is higher than that of the Census estimates. A considerable portion of working women is above the age of 55. The type of jobs done by the women folk in these villages are:—uprootig of seedlings, transplantation, harvesting and threshing of paddy besides their day-to-day household works. A family without women workers cannot complete agricultural activities successfully. There are instances of boys marrying at early age to procure workers for agriculture.

The percentage of female workers in North East India, where 99 per cent of the population depends on agriculture, is very high. In table I, the proportion of male and female workers in tribal societies of N:E India is represented.

TABLE I

Rate of male and female workers in the tribal societies

State	Name of Tribe	Workers	
		Male (P.C.)	Female (P.C.)
1	2	3	4
Arunachal . . .	Gallong	50	50
-do-	Nocte	48	52
Tripura	Riyng	52	48
Mizoram	Mizo	49	51
Assam	Nisi	51	49
-do-	Karbi	52	48
Meghalaya .	Khasi	40	60
Manipur	Manipuri	45	55

*Village Survey Reports Agro-Economic Research Centre, Jorhat.

In tribal societies, jhuming, a primitive form of shifting cultivation is generally practised. The farm size of a shifting cultivator household depends upon the number of workers in the family. In this system of cultivation, practically no agricultural implements is used. Rather it depends solely on the human labour. Rich men of the Nisi, Miri, Gallong and Apatahi tribes of Arunachal Pradesh have sufficient number of workers under them. Such rich persons used to increase the number of workers by acquiring slaves or marrying more wives. Slavery being prohibited, marrying more than one wife is the only way to procure more working hands. It is not rare in this region to find rich persons marrying five or six wives. Though manual labour is not looked down upon in the tribal societies, yet men do not work as wage-earner under a person of the same tribe. So, persons in such a society improve their economic condition by marrying more wives. A polygamous man gets better social status in these societies. Moreover, such a person gets help in various ways from his wives, relative in time of need.

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*Agro Economic Research Centre for N.E. India, Jorhat

In tribal societies, women workers play an important role in agriculture. The women clean the jhum land, sow seeds and harvest the crops. Weeding the jhum fields is exclusively done by women in many tribal societies. Early in the morning after completing the household works, they go to the fields. Those who have little babies, they take babies to the field on their back. Some women of Miching community of Assam are seen spining even on the way while going to the agricultural fields and some are seen hoeing their fields with babies tied on their back. What is more, a newly married woman carries bundles of fire wood to her home from nearby jungle Women of these societies also go to market for buying and selling goods. The women return from the fields with bundles of fire wood. Reaching home, they take care of their domestic animals, and attend to cooking and other household chores. Man rarely help women in husking paddy and cooking food. Men spend considerable time in marriage negotiations, settlement of disputes relating to non-payment of bride-price and dowry etc.

In the North Eastern Region there are numerous tea gardens which employ a large number of women. The work load is found to be higher on women than that on men among the non-tea garden labourers living in the villages of the region.

As stated earlier that women of some particular castes and communities or societies are not allowed to do agricultural works. In these communities or societies, male members of the family have to do all kinds of agricultural works. In harvesting season, men are very much busy in harvesting the paddy, carrying harvest to their home. The male members labour work very hard during this period. As a result of this taboo on women in working in the agricultural fields, these poor peasants have to spend their days in economic hardship.

The present system of education has taught both men and women to be averse to manual labour in general. Inspite of it many educated girls and women studying in schools and colleges in rural areas take active part in agricultural operation. They have become an ideal for the peasant society.

Tea garden women or tribal women who do physical labour regularly can maintain their good health upto the old age. The Meitei Manipuri tribal women above the age of 60 years do hard physical labour in the field and even when they are over 60 they maintain good health. One can think of an ideal life, a perfect society and a powerful nation only when all the citizens of the country will learn to labour both mentally and physically for self development. Moreover, it is rather impossible to give desk jobs to the majority of the population.

If both men and women are employed in productive works according to the physical capacity, then and then only a desired result can be expected. It is hoped that the heavy work load of tribal and rural women in agriculture will be lessened with the introduction of improved technology. □

Tribal Development Programme in Gujarat

A joint tribal development programme of the Gujarat Tribal Development Corporation and ten major commercial banks, including the Bank of India, is now being implemented in some tribal pockets in Gujarat. The programme aims at improving the economic conditions of 60,000 tribal families in a phased manner over a period of five years (1978—85) by engaging them in productive occupations through financial support from banks. Under the Rs. 15-crore programme launched in June, 1978 in eight intensive tribal pockets the banks have been extending financial assistance for the purchase of milch animals, bullocks and bullock carts and the setting up of poultry units. Loan of Rs. 2500 is being given to a borrower on the concessional rate of interest of 4 per cent per annum under the DRI scheme. The State Government provides a subsidy to the extent of 50 per cent of the cost of investment.

A field survey conducted by the Bank of India of 115 tribals of 12 milk producers' societies in 5 talukas of Balsar and Surat districts has revealed that the scheme has enabled about 2400 tribals to supplement their income by Rs. 523 per lactation and generate 1000 litres of additional milk per day in the project area. The average milk yield from buffaloes stood at 973 litres per lactation and the net income from the sale of milk and manure was Rs. 523 in one lactation.

The benefits derived through the programme, however, fell short of targets. The programme envisaged the milk yield of 1500 litres and a net income of Rs. 730 per lactation. The most encouraging feature of the programme was that despite present needs of their families the beneficiaries were regular in repaying the bank loans.

The study also revealed such shortcomings of the scheme as inefficient working of purchase committee, weak supervision of implementation by the corporation, lapse in identifying eligible beneficiaries, shortage of green fodder and poor veternary services. □

Coal: Higher Production Needed

Dr. Badar Alam Iqbal

IN Indian economy, coal occupies a position of cardinal importance not only as a major source of energy for the key sectors like steel, power railways and cement, but also as a feedstock or the production of agricultural inputs such as pesticides, insecticides and manures. India is very fortunate so far as coal reserves are concerned. But the quantum of good quality coking coal needed for steel mills is very limited. Recently several coal based super thermal power plants have been establised, in India. According to latest data available on the coal deposits, India has 11,000 million tonnes of coal and 2,100 million tonnes of lignite.

In 1971 the Government of Inda took the decision to nationalise all the private owned coking coal mines except those belonging to M/s Iron and Steel Company and Tata Iron and Steel Company. The step was taken mainly for conservation and proper development of coking coal reserves which were being depleted fast because of unscientific mining. The nationallisation was also considered necessary for meeting the increasing demand of coking coal to cater to the needs of one of the most important industry of India i.e. Iron and Steel Industry. An autonomous corporation known as Bharat Coking Coal Limited was established to manage, restructure and modernise the nationalised coal mines. In 1972-73 the Government of India nationalised non-coking coal mines also. Another autonomous public sectorm undertaking in the name of Coal Mines Authority Limited was also formed to deal wth all nationalised coal mines as well as the mines of National Coal Development Corporation.

Before the second nationalisation of 1973, the production was not carried on scientific lines, resulting in huge wastage. Unhealthy working conditions for workers and inffective distribution system, were the main features. Thus, in order to step up the productivity of coal for meeting the increasing demand of coal resulting from rapid industrial growth. Also due to alarming rise in the prices of crude oil, the Government of India made serious efforts to augment the coal output during 1977-78 leading to a temporary glut in the coal supplies. Efforts were also made to persuade the textile units to use indigenous coal instead of furnace oil which has to be imported. However, coal output has remained mostly stagnant. While some of the important users like steel, power, railways, cement, fertilisers increased their capacity further resulting in dis-equibrium between demand for coal and supply of coal. Therer is a significant gap between the demand and supply of coal particularly in power plants.

The primary aim of nationalisation was to ensure adequate supply of quality coal to the user at a reasonable price. But this particular objective has been totally defeated and the public has been thoroughly disillusioned. There are also serious complaints from the coal consumers in respect of adequacy, timeliness and quality of coal supplies. In Southern India the power and cement units are the worst hit as they were forced to cut drastically their capacity utilisation because of non-availability of coal. Efforts to replace furnace oil by coal resulted in wastage of man power, material and machine. In the State of Maharashtra scarcity of coal has resulted in a serious power shortage which in turn is leading to curtailment production in industrial undertakings. The main factor which is responsible for such state of affairs is the continued shortfall in the production targets.

In all the five year plans there have been shortfalls between target and achievement and there is not a single plan in whch target has been achieved.

The main constraints responsible for such shortfalls in coal output are labour unrest, non-availability of explosives and other inputs. Actute power shortage has affected output, trans and final cost of coal. Added to this are the inter-union rivalries resulting in avoidable strikes and work stoppages leading to loss of production. According to a published report in 1978-79, there were as many as 623 strikes resulting in loss of mandays worth Rs. 7 lakhs.

In India there are two major producers of explosives. A strike in any of their two plants would certainly effect the supply of explosive to the coal mines. Likewise coal output is also affected by shortage of power supply and regular interruptions in the

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In India the chief coal producing states are West Bengal and Bihar and these states require nearly 220 M.W. power during the peak coal mining season. As compared to this, these states got power between 160 M.W. and 180 M.W. during 1978-79. For this the Damoder Valley Corporation is chiefly responsible as supplied only 50 per cent of the alloted quota.

While Coal output is stagnant the demand for coal is rising at a faster rate. Similarly the level pithead stock of coal over the years is showing a different story. The total output of coal has gone upto nearly 102 million tonnes in 1978-79 from 88.4 million tonnes in 1974-75 showing an over all rise of more than 15 per cent. Similarly, despatches also went up to 96 million tones in 1978-79 from 85 million tonnes in 1974-75 indicating an over all rise of nearly 13 per cent. But in 1978-79 the despatches declined by nearly 4 million tonnes. Likewise daily average of wagons loaded has shot up to 9 thousand wagons from 8·3 thousand wagons during the period under reference showing a rise of more than 7 per cent, while closing stocks have become more than double i.e. from 7 million tonnes to 15 million tonnes during the same eriod indicating an increase of more than 114 per cent. The rate of increase in the total output of coal has been higher than that of the total despatches of coal. This shows that low rate of increase in despatches is the main constraint to the present coal crisis. But this is because of fall in wagon supplies by the railways and partly due to low rate of growth in daily average loading during the peak coal mining season The railways carry two-third of the total coal despatches and obviously the shortage of wagons for coal flow would certainly affect the supplies to the coal users. It is important to note here that the growth of the carrying capacity of railways is lagging behind the general growth of country's economy. This means that India is now facing the serious supplies bottlenecks. The failure of the railways to supply coal to various consumers particularly thermal plants has forced the authorities to despatch coal by road. This means an increase in freight charges. Road transport costs nearly seven times more than the railways.

The coal crisis is the result of a number of factors not necessarily connected with production process alone. Apart from this the responsibility of railways can not be over emphasised. The coal authorities have blamed the railways for the current coal crisis, while railways in turn have accused the coal industry for inadequate movement of coal for rail sidings. Added to this, the wide spread floods in the Northern India during 1979-80 led to immobilising hundreds of wagons in the Eastern region.

Thus the need of the hour is to take short term as well as long term measures to reduce the scarcity of coal. Long term measures should include a proper linkage between power stations and the coal mines as well as the development of necessary rail capacity for effective supply of coal, while short terms measures can be like speedy movement of available coal to steel mills, powers stations, cement plants, fertilisers factories etc. Import of explosives and installation of big power units for coal mines must be taken so as to maintain production level in all the industrial units.

The target for coal output for the current year has been fixed at 225 million tonnes and all measures are being taken by the concerned authorities to attain the same. The Ministry of Energy is also taking steps to import five 20 M.W. thermal plants from Poland to generate substantial power at least for coal washerires. In this regard the Government of India have also decided to continue liberal imports of explosives and nearly 15,000 tonnes have already been imported. The Government have also appointed a cabinet sub-committee to analyse the transport problems in coal and it is reported that railways are sending special coal rakes to the power plants. Road transport is also being used to rush coal where it is required urgently. It is hoped that all these measures would reduce coal shortage.

In regard to long term outlook for coal supplies the earlier Draft Sixth Five Year Plan has projected that the demand for coal would rise to 150 million tonnes by the end of 1982-83 as compared to actual output of 102 million tonnes in 1978-79.

In order to increase the coal production to a level of 150 million tonnes per year by 1982-83 and 200 million tonnes by the end of 1985 from the existing level would be the most challenging task for the coal industry. This growth rate, if achieved would be one of the fastest in the world even considering the developed economies. This, therefore, calls for sustained and coordinated efforts. The first and the foremost task before India is perspective planning for the inputs required for the achievement of the output task and consists of planning for future demand machinery, power, arrangements for coal transport to various consumers, availability of basic construction material like iron and steel, cement and explosives and training. of management staff and technicians. The volume of work load in prospecting, planning and designing and reorganisation is tremendous especially considering the low level of these activities in the past.

According to the Annual Report of the Department of coal for the year 1978-79, 14 coal projects have been sanctioned by the Government till December 1978 and another 20 projects were under the Government clearance till March 1979. The Government have further proposed to open a second lignite mine with a capacity of 4.7 million tonnes at Neyveli to meet the requirements of another thermal plant to be installed there.

Besides there is another contraint of required capital for the development of coal mining. It is estimated that huge capital would be needed if we are to achieve the target of 200 million tonnes by the end of 1982-83. Therefore in the years between 1978-79 and 1982-83, substantial finance would have to be made available. The Ministry of Energy itself found that a total of Rs. 2,000 crores would be required to attain the target. Thus, in order to meet the capital requirements of the coal industry an outlay, of Rs. 1,850 crores has been provided in the Sixth Five Year Plan. The remaining Rs. 150 crores would be pumped in during the next two years to take care of production in the years to come. But the basic question is how to find out this amount. The Ministry is of the view that the necessary resources must come from within the coal industry itself.

Recently, there has been a fresh settlement with labour regarding the wages. According to new settlement minimum monthly salary of an unskilled coal minor has gone up from Rs. 74 to Rs. 512. It is hoped that with this settlement the coal industry will get positive cooperation from the labour force to augmen its output. Besides the railways are going to provide nearly 73,000 wagons during the Sixth Five Year Plan for increasing their carrying capacity to the various destinations. So far as the availability of explosives are concerned, it is of utmost importance that the Government should create further capacity for their manufacture so that the seracity of this vital input for coal mining does not crop up in future.

Need for National Consensus on Family Planning

Smt. Indira Gandhi*

THE time has come for us, while in a state of shock, to revamp and revitalise our family planning programme, to re-examine existing schemes for information, communication and motivation. Studies show that a large number of our people even in remote villages do want family planning. Then why don't they practise family planning—that is the question. Has bureaucratisation of the programme blunted enthusiasm and stunted efforts at the grass-roots level? Or is there any other problem which has risen ? Let us learn from the States where the programme has made a visible impact.

New communicaion strategies must combine individual case-work and the mass approach. Simultaneously, clinical and other facilities should be rapidly improved, made more accessible and developed as an integral part of a comprehensive health-care system Family planning should be made consistent with the needs of the people and be related especially to the health and care of women and children and the economic well-being of the family as a whole. We must also be careful that any programme should relate to local culture and tradition of people.

Population trends and development policies are interlinked in numerous ways. Many demographers believe that high fertility is an inevitable response to the social uncertainties and economic shortcomings of developing countries. We realize that family planning cannot succeed without parallel changes in the social situation—in the living conditions of the masses, their educational status and facilities for health care.

I reiterate my government's total commitment to voluntary famly planning. We have been and are firmly against compulsion.

Obviously, family planning should be the centre of planned development. The Sixth Plan has earmarked over Rs. 10,000 million for family planning, which is funded entirely by the Central government Lack of resources is not a restraint.

There is talk of the desirability of a national consensus on basic problems. If there is any one issue on which a national consensus is most urgent, surely it is family planning. In recent years family planning was dragged into political and partisan controversy. But let us now leave that phase and move farward.

I take this opportunity to urge all political parties and groups to place family planning above sectional politics and to recognise it as one of our foremost national priorities, demanding the whole hearted allegiance and cooperation of all. Population is a human problem, it is an issue of the quality of life.

Falling Birth Rate in Sweden

IF present trends continue the Swedish birth rate will sink to only 1.6 children per woman during the 1980s, according to a study carried out by the National Central Bureau of Statistics of Sweden. Unchecked, this will result in a net reduction of the indigenous population of about 1 per cent yearly.

Fecundity in Sweden peaked at 2.48 children per woman in 1964, fell to 1.93 in the following four years, and continued downwards during the 1970s. While 77 per cent of all 20-year-old women were childless during the "baby born" of the mid 1969s, this had risen to 86 per cent by 1977.

Women today tend to be older when they have their first child and fewer of them give birth to three or more children. There is also a longer interval between births. The only reason for the continued marginal increase in the population is the high rate of immigration and a greater life expectation.

(News letter from Sweden)

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*From Prime Minister's inaugural address at the first National Conference of Parliamentarians on problems of Population and Development, Organised by Indian Association of Parliamentarians, in New Delhi on 25-5-1981.

Regional Languages Library

A Repository of National Knowledge and Culture

R. R. Rao*

BAHAWALPUR House, in New Delhi, the abode of the Regional Languages Library, (RLL) is the repository of national knowledge and culture. The National School of Drama is also housed here. In the neighbourhood are Rabindra Bhavan the house of three Academies—Sahitya, Sangeet and Lalit Kala : Mandi House from where Doordarshan Headquarters operate, Kamani Auditorium and the Sri Ram Centre for Art and Culture. The set is simple superb and splendid.

About one hundred thousand books in all the regional languages of India, including Sanskrit, are stocked here neatly. As per the split figures supplied, Hindi books top the list followed by Tamil. There are about 15,803 books in Hindi; indeed a large collection. As many as 10,120 Tamil publications adorn the stacks of the language wing. This is closely followed by Bengali with 9,296 books, and Kannada with 8,702 works. Sindhi has the least number of books, that is 1,363. The collection of other language books vary in between; Malayalam—8696, Telugu—5694, Marathi—7091, Oriya—2064, Gujarati—6915, Punjabi—4723, Urdu—6209, Assamese—2112 and Sanskrit—3140.

On an average the library has about 7,143 books in each language. Incessant efforts are made to keep in touch with leading book publishers all over India, national and regional Sahitya Academies, National Book Trust of India and other organisations so that the library is posted with the information about the new books published.

The lending section and the reference wing are full with all types of books. Depending on his interest a reader may sit comfortably in the reference wing, select encyclopaedias, dictionaries, autobiographies, biographies, literary works of eminent persons etc. and do research work. Or if he is a lover of classics, he may choose the Ramayana, Mahabharata etc in his language. If the visitor wants some "boy-meets girl" type books witten by popular authors, they are also available. Any one who wants to peep into one's future, may do so by consulting books on astrology which predict how his stars would move or what the lines in his palm speak.

A visitor going through literature on Rabindranath Tagore.

Bahawalpur House was earlier housing the USIS library. Later when that Library was shifted to another building the RLL moved in. The RLL which was earlier a part of Central Secretariat Library in Shastri Bhavan started functioning from the new, premises on the occasion of the 400th anniversary celebrations of the epic, *Ram Charit Manas* and formally inaugurated in March 1979. At the beginning, it was known as Central Hindi Library. But later the authorities felt the need to identify the books in regional languages also. In the same building Regional Languages Library, Indian Classics Library and Central Sanskrit Library were also added. The authorities desire to bring this library on par with National Library at Calcutta.

Anyone who wants to enrol oneself as a member of RLL, has to do so in the Central Secretariat Library. They issue six tickets for both the libraries, three each.

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*Our Correspondent

Limited Users

Even though the RLL has stocked a large number of books in all languages, it is regrettable that the service is being utilised only by a few persons in the capital.

According to the Librarian, RLL is a part of Central Secretariat Library which itself in the beginning was established to cater to the needs of the staff of the Ministry of Education and Social Welfare. Later the membership was thrown open to other Government employees. Till recently there was no way of making the library more popular because of lack of staff and some administrative problems.

Visitors to exhibition on works of Rabindranath Tagore

About staff problems, the Librarian felt that there was dearth of qualified librarians in regional languages in New Delhi and the qualified hands outside Delhi do not find the post lucrative. This is particularly so in getting qualified hands in Assamese, and Oriya. Even Sanskrit suffers that way. Because of non-availability of qualified hands in some languages or late arrival of others some of the books in the RLL are lying unprocessed or partly processed and the catalogue is incomplete.

The library has a copy of the first book published in India. It is "A Grammar in Bengali Language" published in 1778, authored by Nathaniel Brassey Halhed, a British teacher and printed at Hoogly in the then Bengal. The grammar book, whose pages have turned brown, was written by an Englishman to enable the Britishers pick up the Bengali language. There are only two copies of the book available in India and one of them is with this library.

What are the future plans of the library? Very soon it is proposed to throw open the Library to teachers and university employees also. Eventually membership may be open to all book lovers.

Book Exhibition.

A book exhibition organised recently by the Library on the occasion of Rabindra Nath Tagore's 120th birth anniversary was the first in the series of programmes to attract the attention of larger number of people. About 600 items were on display at the exhibition including autobiography, biography, criticism, collected works, poems, plays, essays, speeches, music and other items of the Nobel laureate. The Library authorities have plans to organise such exhibitions on the anniversary celebrations of eminent people of other languages and regions also.

A view of the reading room

A suggestion may be made here for the consideration of the authorities. With nominal or no expenditure, they can arrange such programmes like film shows on books with the help of Directorate of Field Publicity. They can contact the Directorate of Advertising and Visual Publicity who would gladly arrange exhibitions suitable to the occasions. Regional folk dances can also be staged with the help of Song and Drama Division.

Last year the budget allotment for purchase of books, the RLL and Central Secretariat Library put together, was Rs. 4 lakhs. The Library is facing a lot of difficulty in procuring books due to the apathy of regional langauge publishers who demand cash payment which is not possible in Government. Inspite of all these hurdles, the Library added about 5,500 books in 1979-80 and 9000 in 1980-81. Credit goes to the band of dedicated employees of the institution, who have been trying to spearhead the cause of knowledge and open up new vistas of literary world to the cosmopolitan people in Delhi. ☐

From view of the library building.

THE Marine Freight Containers' Plant in Aroor, near Cochin set up by Balmer Lawrie & Co. Ltd. a public sector enterprise, was recently inaugurated by Shri P. C. Sethi, Minister of Petroleum, Chemicals & Fertilizers. The Plant has been set up in technical collaboration with York Trailer Co. Ltd. of U. K. The Unit has a capacity to manufacture 5000 containers, per annum and is equipped to manufacture 20-ft. and 40-ft. containers. The Company also plans to manufacture special purpose containers like open-tops, half-heights, insulated and refrigerated containers in due course.

Balmer Lawrie has set up the plant at a most opportune moment since the country is going for containerisation in a big way and in the entire shoreline

A view of the Marine I

KASTURBAGRAM, the State Headquarters of the Tamil Nadu Branch of the Kasturba Gandhi National Memorial Trust was started in May, 1954. Sprwaling over 112 acres of land Kasturbagram's main objective is to undertake comprehensive village development programme through the women. Activities of the institution cover educational schemes vocational training, welfare work, income-oriented projects and other social activities like adult education, holiday camps community prayers and padayatras.

Educational Schemes

Under the pre-elementary school, boys and girls of the rural poor numbering about 300 are learning the three R's under personal care. Only girls are admitted into high school. They also learn tailoring basket making gardening etc. About 250 girl students are workings social workers also.

Vocational Training

Daughters of tea estate labourers and other poor agricultural workers are given systematic training in tailoring. 25 Ambar Charhas are also available with the institution.

Welfare Activties

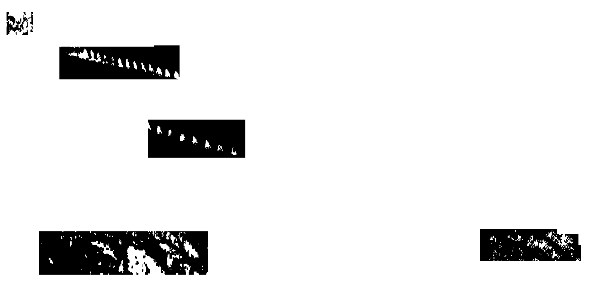
A Mini Health Centre with a part-time doctor and two auxiliary nursing midwives takes care of the health of poor people in about 18 villages, surrounding this institution. About 200 families have joined the Health Insurance Scheme sponsored by the Centre. Village women are told about child care, nutrition and sanitation. About 240 children are benefiting in the ten Balwadis. There are four creches benefiting 125 children. About 150 orphans are being provided with free boarding, lodging and education by the children's home. There is also a destitute home for young girls. They are given proper education and vocational training.

Income Generating Projects

The institution has turned the fallow lands in its hold into cultivable lands yielding tapioca, coconut, groundnut, castor, pulses and cereals. In the kitchen garden a ariety of vegetables are grown. Sugarcane is also grown in about 50 acres of land. Eucalyptus saplings, mango grove, jack trees and other fruit-bearing

THE construction of Soviet Union's first experimental solar power station has started near the township of Lenino in the Crimea on the Azov Sea Coast. This power plant will have a capacity of 5,000 kw.

Meanwhile the Soviet Central Asian Republic of Turkmenia is conducting extensive researches for harnessing the solar energy. In order to harness the Sun, and use its abundant energy, given free by nature, the Turkmenian Academy of Sciences has set up the Solar Energy Institute. This Institute, the first in the Soviet Union and third in the world, is situated near Ashkhabad the Republic's Capital.



An experimental hothouse in the Central Kara Kum Desert.

rine Containers' Plant

Freight Containers' Plant in Cochin

starting from the Mediterranean Sea in the West, right upto the South Korean Taiwanese and Japanese shores in the East, there are no freight container manufacturing units except in India.

The growth in the number of containers handled at our Ports over the last few years has indeed been very significant. Already Bombay, Madras, Haldia/Calcutta, cochin and Tuticorin Ports have been suitably equipped with adequate container handling facilities. Creation of inland container ports is also on the anvil. Bangalore is already being developed as a container port and plans are under way for having one at Delhi.

The containers manufactured at this plant will almost entirely be sold to foreign leasing companies and the company hopes to earn around Rs. 9 crores in the first two years by way of foreign exchange.

Learning to live together

trees abound in this area. Annual income through coconut trees alone is more than Rs. 10,000 The cattle farm run by this institution has 20 milch cows which offer enough and to spare for the Co-operative Milk Producers' Society. Under the auspices of the Khadi and Village Industries Commission, two electrically operated oil grinders are set up. The gobar gas plants give fuel as well as manure for the villagers. Lighting system in the high school is mainly run with these plants.

Social Activities

The institution has taken up adult education benefiting more than 3,000 adults through its 100 centres in nearby villages. Every Friday dawns with solemn Sarvodaya prayer. Community prayer, both morning and evening, has impresssed the visitors. On each Sunday, the staff and students of the institution undertake padayatra to adjacent villages chanting national songs and slogans on education, anti-untouchability, prohibition and anti-dowry. Such padayatras do help to infuse a sense of oneness among the villagers.

Kasturbagram with an expenditure of more than 12 lakhs each year is creating a social consciousness among the rural people.

On a sunny day, on the premises of the Institute, there are constant blinding flashes of light. This is the result of the operation of solar energy traps, which accumulate solar energy and activate numerous solar powered plants, like mineral water distillation plants, boilers, thermoelectrical water lifts and refrigerators. Under a protocol signed in November last year Soviet Union is also providing assistance to India in the utilisation of solar energy.

Sun-Drying Of Vegetables

HARATI, a drought-stricken village, 15 km. south of Kolar in Karnataka is turning its hot and dry weather to advantage—for sun-drying fruits and vegetables. Potatoes, capsicum and brinjals have been dried successfuly and economically.

The Association of Food Scientists and Technologists and Central Food Technological Research Institute, Mysore have trained the villagers in food preservation A commercial food processing Unit is proposed to be set up. It is expected to produce syrups, squashes pickles, sauces and chutnevs which will be sold to canteens in Kolar Gold Fields, Kolar and Bangalore.

Planning and Population below Poverty Line in Tamil Nadu

D. Bright Singh*

IN 1973, Tamil Nadu had 52.5 per cent of the population below the poverty line, that is, their monthly expenditure was below Rs. 40. Recently the 32nd round of the National Sample Survey on household consumer expenditure arrived at figures relating to the number of people below poverty level for all States of India. The estimates are derived by using the poverty line of Rs 65 per capita per month at 1977-78 prices. For Tamil Nadu, the percentage of people below poverty line in rural and urban areas came to 52.12 per cent. The Sixth Five Year Plan of Tamil Nadu envisages an outlay of Rs 3150 crores over the five years 1980-81 to 1984-85 The overall investment outlay in the State for Central sector will be Rs. 7875 crore.

Effect of large investment

What will be the effect of the investment of about Rs 8,000 crores on the number of people below poverty line in the State? This can be estimated by considering the important variables that determine the level of poverty of the people namely per capita income of the people, degree of unemployment, extent of industrialisation, rate of growth of population and price level.

On the basis of the satistical information pertaining to the above mentioned five items for the States of India, it is possible to make a cross section analysis and construct a regression equation with proportion of people below poverty line as the dependent variable and the fiive items shown above as independent variables. The relevant data used for the purpose are given in Table on the next page.

Poulation growth rate, annual, 1971-81 : Compiled on the basis of census data for 1971 and 1981.

The regression equation obtained in this manner is:

$$Y = -0.8954 - 0.0394 \times_1 - 0.0097 \times_2 + 1.2219 \times_3 + 0.0149 \times_4 - 0.3352 \times_5$$

Where Y is percentage of people below poverty line
X_1 Per capita income
X_2 Degree of unemployment
X_3 Index of foodgrains prices
X_4 Industrial income/agricultural income—The latter taken as 100
X_5 Rate of growth of population

Calculations are made on two assumption with regard to the behaviour of the variables.

First assumption : Per capita income in 1984-85 Rs. 1500—the target fixed in the Sixth Five Year Plan. The present level of income is Rs. 1076. Unemployment level 12 per cent; present rate is 16 per cent.

Index of Foodgrains prices 320 (1960—100)—present level is 388.

Ratio of industrial income to agricultural income 80 : 100; present ratio 70 : 100;

Population growth rate 1.5 per cent per year; present rate 1.71 per cent a year.

Using these figures in the equation and solving we get 46.15 per cent. That is, the proportion of people below poverty line in 1984-85 will be 46 per cent compared with the present 52 per cent.

Second Assumption : Per Capita income in 1984-85 Rs. 1700; Unemployment level 14 per cent. Index of foodgrains prices-300 (1960—100). Ratio of industrial income to Agriculturarl income : 80 : 100 Growth rate of population : 1.7 per cent per year.

The solution for this is 40.64 per cent, this being the proportion below poverty line in the last year of the Sixth Plan period.

With regard to per capita income, and index of food prices the first assumption is modest, whereas in the second variant, unemployment level is assumed to remain quite high (14 per cent compared with the present 16 per cent) but per capita income is set at a higher level than in the first set of assumption (Rs. 1700 as against Rs. 1500) and foodgrains prices are also assumed to be relatively low. (300 compared with 320). It is also clear that as a single variable, price level has a greater influence in determining the number of people below poverty line.

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*Fulltime Member, State Planning Commission, Tami Nadu

Determinants of Poverty : Data relating to the States

State	Per Capita income	Unemployment percent 1977-78.	Index of food prices 1975. 1960-100	Proportion of industrial income to agricultural income (the latter taken as 100) 1974-75.	Population growth rate annual 1971-81	Proportion of people below poverty line
1. Andhra Pradesh	935	10.8	325	16.52	22.76	42.2
2. Assam	819	1.8	344	2.00	36.09	51.1
3. Gujarat	1199	6.4	341	70.29	27.21	39.0
4. Haryana	1154	6.9	333	2.17	28.04	24.8
5 Jammu & Kashmir	922	5.9	295	11.13	29.57	34.1
6. Karnataka	1048	9.6	345	7.25	26.43	48.3
7. Kerala	949	26.0	353	14.57	19.00	47.0
8. Madhya Pradesh	797	3.1	368	23.76	25.15	57.7
9 Orissa	767	8.2	343	10.71	19.72	66.4
10. Maharashtra	1433	8.2	315	70.95	24.36	47.7
11 Punjab	1800	5.0	333	16.15	23.01	15.1
12. Rajasthan	887	3.4	348	12.22	32.36	33.8
13. Tamil Nadu	967	16.1	388	75.78	17.23	52.1
14. Uttar Pradesh	809	4.3	245	14.93	25.48	50.1
15. West Bengal	1176	10.4	312	39.10	22.96	52.5
ALL INDIA*	1092	8.5	337	33.29	24.74	48.1

*Including Union Territories.

The safe conclusion that may be drawn from the above analysis is that if the targets set in the Sixth Five Year Plan are achieved, the proportion of people below poverty line can be brought down to the reasonable level of 40.64 per cent. This appears to be an improvement, but it an improvement only in the relative sense. In reality, if we are to reach the level of the better developed, of even the low income economies of the world, we have yet far to go. ☐

A Gobar Gas Plant at Half the Price

Shri Namdeoraoji Gadmade, a tribal from Talodhi-Balapur in Chandrapur district, has set up janta gobar gas plant with an expenditure of Rs. 2015/- only. The system of drums has been eliminated in this new model, thereby saving a huge expenditure. The ordinary plant with steel drums costs nearly Rs. 4000. Shri Gadmade was given guidance by the officials of the Farmers' Training Centre, Sindewahi. Talodhi-Balapur Branch of State Bank of India helped him financially. This new model has been built up with brick-work instead of steel framework. Shri Gadmade has inspired 30 more tribals to set up such plant. This is bound to change the life of these tribals for the better.

FPO, Chandrapur

Four-Fold Increase in Lignite Corporation's Profits

The Neyveli Lignite Corporation, a public sector undertaking increased its net profit from Rs. 3.34 crore in 1979-80 to about Rs. 15 crore during 1980-81. Lignite production rose from 2.9 million tonnes in 1979-80 to 4.8 million tonnes during 1980-81. There was a 34 per cent increase in power generation and a 28 per cent rise in fertilizer production.

The Corporation runs a 600 MW power station which uses lignite as fuel, a urea plant which produces fertilizer, and a plant to manufacture Leco, a smokeless fuel for domestic and commercial consumers in the South. ☐

Window on the World

Brazil's Economic Development

K. S. Mehra*

BRAZIL having an area of 8,511,965 sq. Kilometres is the largest country in Latin America and the fifth largest in the world, exceeded only by the USSR, Canada, China and U. S. A. To its north are Venezuela, Colombia, Guyana, Surinam and French Guanna. To its West are Peru and Bolivia to the South are Paraguay, Argentina and Uruguay. Due to its geographical position diverse climates can be found within the country.

Brazil ranks seventh among the most populous countries in the world, with approximately a 110 million population, which is about 50 per cent of South America's population. Its population doubled in the last 25 years.

Agriculture and Livestock

Brazil is essentialy an agricultural country. However, as a result of an intensive industrialization process its economy has become agro-industrial type. It not only ranks first among the world's major coffee producing countries but is also among the leading producers of cocoa, maize, cotton, sugarcane, soyabeans, beans, tobacco, sisal hemp, jute, black pepper, banana and caster oil.

Agricultural products account for a large proportion of Brazil's export earnings, although agriculture's share of the G.D.P. is falling. In 1977 Brazil became the world's second largest exporter of agricultural products Among them the principal foreign exchange earners are coffee, sugar and soyabeans.

Mining

Brazil's reserves of ore, such as iron, manganese, nickel, aluminium, tin, tungsten, erylium, sea salt, mica, quartz, diamond and gems, are plentiful. It is a large exporter of iron and manganese. There is also satisfactory evidence of the existence of thorium, titanium and other strategical mineral deposits. Brazil is currently assessing its reserves of oil, uranium and coal, Its oil-fields meet about 20 per cent of the domestic needs. In 1974, the average production ran upto 180,000 barrels per day.

Manufacturing Industry

Since early 1960's greater emphasis had been laid on industrial development in a bid to ensure that by 1978 exports of manufactured goods account for [illegible] per cent of total exports. After registering a rise of 12 per cent in 1976, industrial output rose by only 3.9 per cent in 1977, partly due to investment set-backs. It, however, showed recovery during the first half of 1978 mainly with the rise in the output of automobile, paper and textile industries.

The Government is implementing industrial programmes in agro-chemicals, fertilizers, paper, cellulose, non-ferrous metals, steel, pharmaceuticals and petrochemicals. Steel is a fast growing industry, with production rising by 24 per cent in 1977, following downward revision of the expansion programme in 1977 to achieve the target of 15.8 million tonnes by 1980. Brazil's automobile industry registered spectacular growth rates until 1977 to become the world's fifth largest. Ship-building is also a growing industry. The 1974-79 National Ship building Plan, later extended to 1982, aims at increasing the size of the national fleet from 6 million to 11 million tonnes with an investment of US $ 83,300. Other industries registering growth are cement, electrical and mechanical equipment.

The Government's EMBRAER and two other private enterprises are building several types of aircraft. The demand for by-products of oil is almost entirely met by domestic production

Electric Energy

To cope with the ever-growing demand for electric energy in the wake of industrial development, Brazil is carrying out a large power expansion programme. In 1977 about 90 per cent of all electric power was generated by hydro-electric project. The Government aims at increasing the total generating capacity from 22,797 MW in 1976 to 59,956 MW in 1987 with the construction of 14 hydro-electric plants, including the Haipu project on the Panama river which will further increase Brazil's installed capacity to 63,600 MW by 1990.

Transportation

In the last few years, the Brazilian highway system developed considerably. A vast highway construction programme is being carried out. It includes a pioneer highway system for the settlement and the economic and social integration of large areas, mainly the Amazon region. Some of the highways, such as Belem-

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*Senior Research Officer, Plan Coordination Division, Planning Commission.

Brasillia (2000 Km-1243 m.) are open to traffic and others of considerable extent are under construction.

Economic Growth

The Brazilian economy has achieved high rates of growth. The growth rate averaged 6.5 per cent in the 1949-1959 decade and 5.9 per cent in the year that followed. In 1970, the growth rate of the national product reached 9.5 per cent and in 1971, 1972, 1973, 1974 and 1975, the percentages of the growth rate were 11.3, 10.4, 11.4, 9.6 and 4.2 respectively. In 1976 it accelerated again to reach 9.4 per cent but then slowed considerably in 1977 to only 4.2 per cent due to the impact of several stabilisation measures, including a restriction on public investment and higher lending rates. Preliminary figures for 1978 showed a moderate growth rate of about 5 per cent. The per capita GNP in 1978 amounted to $ 1570. A major part of government policy has been to increase exports in order to offset the huge oil bill and debt-service requirements.

Since this growth has not been evenly distributed among the major regions, programmes have been developed aiming at stimulating progress in less developed regions of great potential resources. This is being carried out by channelling public and private investments (the latter by means of fiscal incentives) to these areas.

Foreign Trade and Balance of Payments

Exports from Brazil increased from an average U.S. $ 1.75 bollion in 1966-68 to $ 12.3 billion in 1977, resulting in a $117 million surplus. Government policy has been to diversify its export markets and a major success in the third world is the $ 600 million contract to supply the Peoples' Republic of China with iron ore and steel over the next three years. The balance of payments showed an overall surplus in 1976 and 1977, mainly due to the steep rise in credits from abroad the rise in foreign exchange. reserves reflects this inflow, and reserves stood at US $ 9.9 billion in September 1978—an increase of 65 per cent over the previous year.

Brazil's external debt reached $ 31.2 billion in December 1977. Inflation also remained a pressing problem at 40.8 per cent for 1978.

Economic Planning

Brazil is fully committed to the establishment of basic conditions necessary for the socio-economic integration of all the regions of the country. It is adopting new policies to modernize its economic structure, to strengthen the competitive position in the export market.

Brazil achieved the goals laid down in the first National Development Plan (1972-74) and in 1975 launched the Second National Development Plan (1975-79) with Programmes covering all sectors of economy. During the second Plan period resources equivalent to some US $ 112 billion were earmarked for social programmes expected to benefit a large proportion of the Brazilian population. Despite the economic slow-down in recent years, most of the aims of the Second Five Development Plan (1975-79) in the fields of sanitation and housing have been realized.

Earthworm Technology

RESEARCH Workers have only recently begun to rediscover the earthworm's role in soil fertility. Ancient civilization recognised its merit : Queen Cleopatra decreed the earthworm a sacred animal. As late as the 19th century, scientist Charles Darwin said that few animals "played so important a part in the history of the world as these lowly organized creatures". Twentieth-century researchers have found that introducing earthworms into the soil can boost crop yield : wheat yields can double, grass yields quadruple, and clover yields multiply tenfold.

Soils without earthworms usually become dense and compact, thus discouraging plant growth. But soils rich in earthworms remain loose, giving the soil a much better capacity to retain air and water. The earthworm's constant burrowing, mixing and digesting turn organic waste into fertilizer and garbage into soil nutrients. The worm itself has possibility as a high protein livestock feed additive. Today 90,000 earthworm ranchers are raising and selling earthworms in the United States.

The American press has recently given much publicity to the possibility of using earthworms as a source of human protein. In fact despite most people's squeamishness, several contests for recipes using earthworms have beeen held in Canada and the United States. Although it may take some time before people grow accustomed to the prospect of eating earthworms, they are already being added to poultry and pet food in some countries.

(Span)

Recycling of Waste Paper

THE use of waste paper in paper and board industry in Sweden reached 673,000 tons in 1980. The relative proportion of waste paper in the paper industry's fibre consumption rose to 11 per cent, equivalent to 2 million cubic metres solid volume of pulpwood.

A contributory reason for the increasing consumption of waste paper, particularly newspapers, is the parliamentary resolution of 1975 on compulsory paper collection. Industry has made substantial investments in new paper machines and deinking plants mainly at newsprint and soft tissue mills.

In order to cover the mills' requirements of recycling paper, a total of about 200,000 tons—mainly corrugated fibreboard and newspaper was imported in 1980. While collection of newspapers from Swedish households in recent years has not kept pace with the mills' requirements. Last year saw a definite improvement with collection amounting to 220,000 tons of newspapers compared with 176,000 tons in 1979. Of the approximately 250,000 tons of newspapers that remain to be recovered, it is realistic to believe that a further 50,000 tons can be collected. This means that the degree of recovery in households would rise from 40 to over 50 per cent.

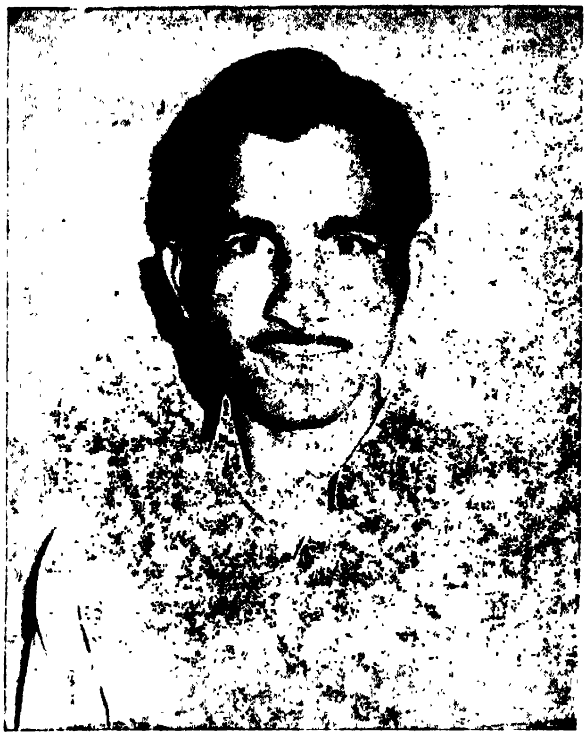
(S. I. P)

Udyan Pandit Award

SHRI Hirabhai Ramjibhai Patel of Bhavnagar District in Gujarat has won the first prize in the All-India Gauva Competition. He has been awarded a cash prize of Rs. 5,000, a medal and the title of "Udyan Pandit". The farmers of 9 states including Gujarat, Bihar, Rajasthan, Tamil Nadu and West Bengal took part in the competition. Through his insight and persistent efforts this simple farmer has earned this coveted distinction at national level and has brought laurels to Bhavnagar District and the State of Gujarat.

This is not the first time that Shri Hirabhai has bagged a prize in gauva cultivation. Earlier in a similar competition in 1975-76 he won second prize. At the state level competitions also, he won two prizes in the past. He cultivates "Reshamadi" variety of Gauva. These Gauvas have been found to be the best in taste, shape, content and production.

Shri Hirabhai says that his success in guava cultivation has been due mainly to the constant care, timely application of fertiliser, water and other inputs. A notable feature of his achievement is that he does not use any chemical fertiliser or pesticide in his guava orchard. After monsoon, he waters gauva trees every week according to requirements and uses organic manure.



Shri Hirabhai Ramiibhai Patel

Maintenance of Ecological Balance Essential

The interest in conservation is not a sentimental one but the rediscovery of the truth well-known to our ancient sages. Indian tradition teaches us that all forms of life-human, animal and plant--are so closely interlinked that disturbance in one gives rise to imbalance in the other..... Nature is beautifully balanced Each little thing has its own place, its duty and special utility. Any disturbance creates a chain reaction which may not be visible for sometime. Taking a fragmentary view, life has created global and national problems.

—*Smt. Indira Gandhi.*

A Decade of General Insurance

GENERAL insurance has come of age in India as a nationalised industry. The premium income in the industry was around Rs. 130 crores in 1970. The figure soared up to Rs. 470 crore in 1980. The fire tariff which is a significant line of business, has been reviewed and the premium reduced substantially from 1979. This has resulted in a voluntary surrender of around Rs. 30 crore by GIC. Similarly, rating in marine hull marine cargo and other classes of non-tariff business also has been brought down. Premium rate for motor insurance has not been raised since 1963. The funds available with the industry have grown from Rs. 460 crore in 1975 to more than Rs. 800 crore now. The GIC is today a large instiution with 350 divisional offices and 860 branch offices. Some three million persons have been covered by insurance.

Fertiliser from Sewage Sludge

In the Federal Republic of Germany a significant headway has been made in the use of radio-active waste and sewage sludge. At Geiselbullach near Manich the sludge is bombarded with radioactive cobalt 60, and turned into a fine fertiliser. This fertiliser is now popular with local farmers not because it increases crop yield but it is also supplied free. Radiation makes the sludge germfree but not radioactive. The Cobalt is soon to be replaced by Caesium-137, a nuclear reactor by-product. Thus, both the sewage sludge and radioactive waste will be recycled and put to good use rather than just stockpiling.

—(*German News*)

Industrial Production During 1980-81

THE industrial production in the country during the current financial year is projected to show a growth rate of eight to ten per cent. The growth rate during 1980-81 was 3.6 per cent against the target of eight per cent. Disclosing this to newsmen in New Delhi the Industry Minister, Mr. Charanjit Chanana said that the projected increase in ndustrial output would be in physical terms.

In the case of DGTD Units, he said, the growth rate during 1981-82 is expected to be from 13 to 15 per cent against 6.8 per cent last year. Mr. Chanana was optimistic that with the improvement in coal production, power and other sectors the overall growth rate this year might even touch 12 per cent. He said that the industrial production was badly hit by shortage of power, coal and other inputs last year.

The FACT

C. S. Pillai*

THE Fertilisers and Chemicals, Travancore Limited (FACT) Udyogamandal, Cochin, a Govt. of India Undertaking, has been showing overall progress. The FACT produced 6,16,027 tonnes of fertilisers in 1980-81, compared to 5,84,404 tonnes in 1979-80, marking an increase of 5.5 per cent. In terms of nutrient nitrogen, overall production touched 1,70,306 tonnes against 1,63,475 tonnes attained during the previous year. As much as 70,802 tonnes of nutrient phosphorus pentoxide was manufactured against cent over last year's figure of Rs. 97 crores.

The sales turnover for the year was of the tune of Rs. 122 crores, showing an increase of 26 per cent over last year's figure of Rs. 97 crores.

Cover Photos

Sulphuric Acid Plant of 1000 tonnes capacity per day—the biggest in Asia—in FACT, Cochin Division—designed and engineered by FEDO.

Urea Prilling Tower at FACT, Cochin Division

The Consultancy and Engineering Divisions namely; the Fact Engineering and Design Organisation and Fact Engineering Works (FEDO and FEW) had undertaken many national and international jobs. The FEDO was selected as the Indian sub-contractor to the American firm Pullman Kellogg and the Ammonia Technology Absorption agent for the implementation of the Rs. 900 crores giant fertiliser project of Krishak Bharati Cooperative Limited (KRIBHCO) at Hazaria in Gujarat State. The total value of projects with which the FEDO is associated now is Rs. 505 crores against Rs. 119 crores in 1979-80. The value of order on hand with the PEW is Rs. 945 lakhs while in 1978-79 it was Rs. 700 lakhs and in 1979-80 it rose to Rs. 870 lakhs. The prestigious job worth more than Rs. 540 lakhs awarded to FEW by the Maharashtra State Electricity Board for the fabrication and laying of Cooling Water Pipe lines and the construction of Pump House and Balancing Reservoir for the Parlie Thermal Power Station was successfully completed and handed over during this year. Another project completed by FEW, was the laying of raw water pipe lines for the Kerala Newsprint Project of Hindustan Paper Corporation of Velloor.

The Kerala Chief Minister inaugurating the FACT'S "Keragram" programme at Iravipuram by planting a coconut seedling

The marketing Division of the FACT continued the various extensive and intensive agricultural and rural development activities in close association with the Government Extension Agencies. Specific mention may be made to the intensive coconut development programme in Kerala called 'Keragram' operated by it successfully in Alleppey District. The 'Keragram' programme now covers over 400 hectares in Travipuram in Quilon District, andn Varandarappilly in Trichur District.

Several steps have been taken in Cochin Division for treating effluents to control pollution. However, to set up permanent control measures, the Naional Environmenal Engineering Research Insitute (NEERI) of Nagpur was entrusted with the task of carrying out a detailed characterisation study of the effluents and recommend suitable treatment methods for both the phase I and Phase II effluents as directed by the Government of India. After a detailed study, NEERI submitted their report in 1980, and based on the NEERI's scheme, design and engineering was done by the FEDO for the plants and buildings and the project reports for pollution control have been sent for Government's approval.

As far as pollution control scheme for phase I is concerned, a urea hydrolyser is proposed to be installed after incorporating provisions for recovering the overhead product from the stripper for re-use in the Urea plant. This will avoid atmospheric pollution besides recovering valuable ammonia as by-product. The capital investment envisaged for the scheme is Rs. 239 lakhs and the operating expenses Rs. 81 lakhs. With these control systems in position, FACT would be able to meet the stringent specifications of the water Pollution Control Board with regard to effluents. □

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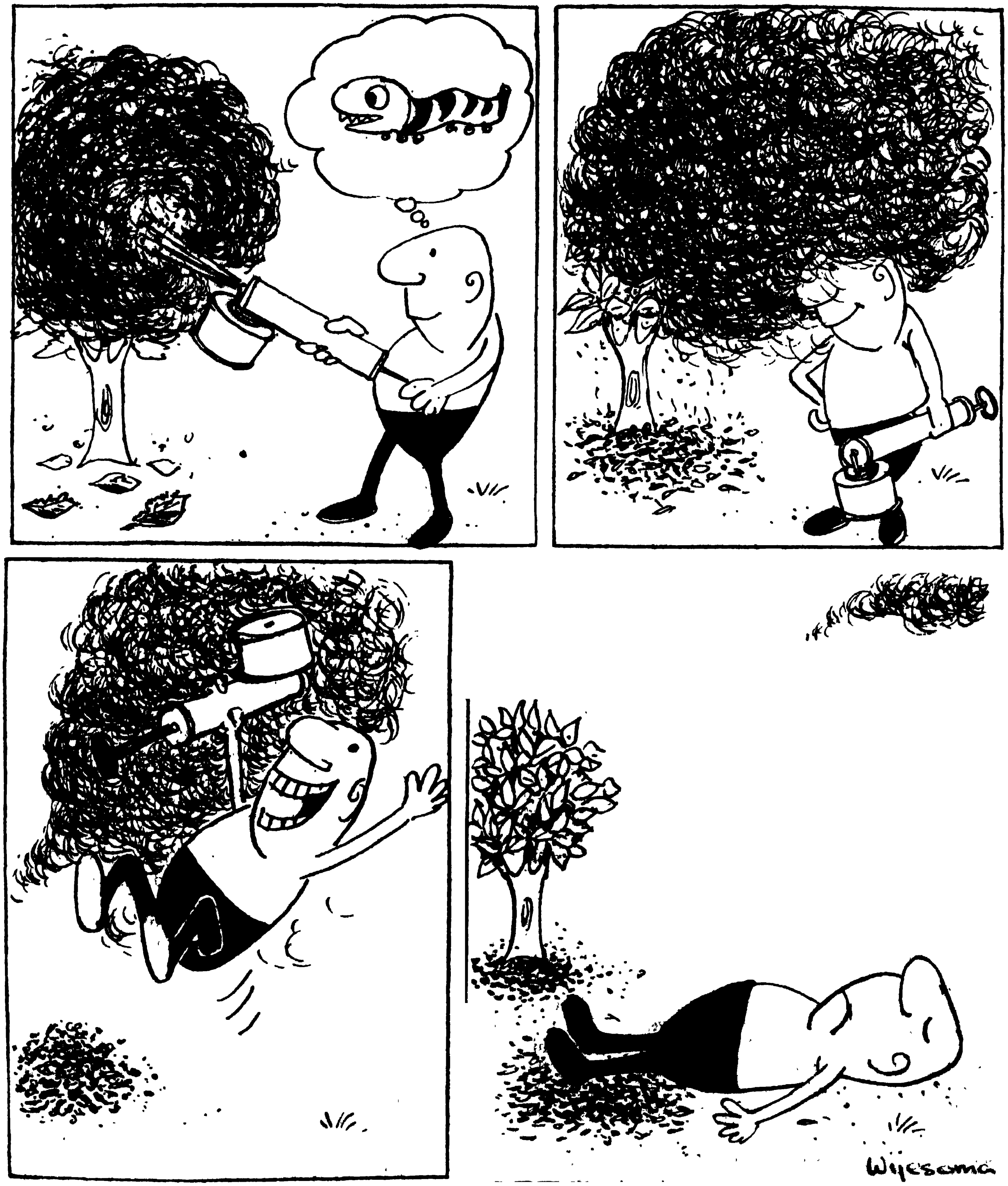
*Our Senior Correspondent and Editor, Yojana (Malayalam), Trivandrum

United Nations Environment Programme



WIPO Awards for Indian Inventions

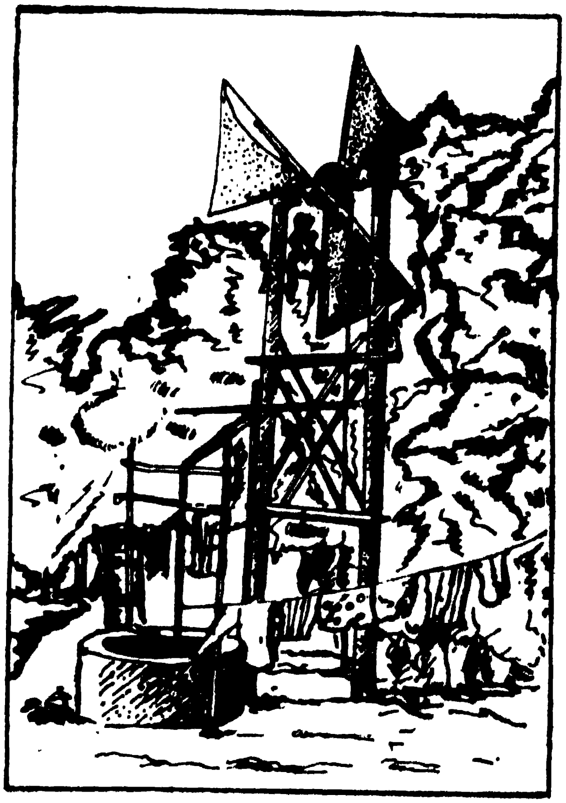
THREE Indian inventions namely 'Balwan Bullock Cart', 'Anila—Wind Device' and 'A method of pelletizing Parboiled Ricebran without Additive', have been given the World Intellectual Property Organisation (WIPO) awards.

'Balwan' is a Bullock Cart of improved design fabricated by Dr. M. R. Deodhar, Shri S. P. Gurjar and Shri S. H. Limaye of the School of Applied Research, Sangli, Maharashtra. The salient design features of the 'Balwan' are : steel tension spokes in wheels of large diameter, two stubshafts supported at each end, externally fitted brakes that can easily be set, taper roller bearings for reduced friction, increased working area, enhanced load carrying capacity and longer working life. Balwan can contribute to economies in transportation of agricultural commodities and more efficient and humane use of animals motive force.

'ANILA' is a Wind Device developed by Shri V. Geethaguru and Dr. C. V. Seshadri of Shri Murugappa Chettiar Research Centre, Tharmani, Madras. ANILA is a new type of wind mill with a sail rotor and a horizontal shaft. The salient features of the wind mill are wooden structures and wooden bearing blocks, stabilization achieved through cross bracings and side supports, smooth metal to wood contacts, self lubricating characteristics and low cost. Even palm trees could be used for supports. The invention finds ready application for domestic water pumping and grain pounding in villages. The technology involved in its fabrication and assembly is simple and can readily be assimilated by rural artisans.

The 'Method for pelletizing parboiled Rice Bran without additive', is invented by Shri P. Pillaiyar of Paddy Processing Research Centre, Truivarur, Tamil Nadu and Shri Md. Kutharethulla, Food Corporation of India, Sembanarkoli, Tamil Nadu. As per the invention, hard pellets of parboiled rice bran can be made for use in solvent extraction plants. The invention enables production of hard pellets from parboiled rice bran, thus rendering the bran amenable for solvent extraction. The important advantage of the invention is that parboiled rice bran can now be pelletised as such, without having to admix with raw rice bran and other binders. The method is simple, inexpensive and effective. In the context of vegetable oils shortage in India, the invention has good potential in the utilisation of large quantities of parboiled rice bran available in the country for extraction of rice bran oil.

Balwan Bullock cart.



Anil Windmil.

The World Intellectual Property Organisation (WIPO) is one of the specialised agencies of the United Nations System. WIPO promotes creative intellectual activity and facilitates access to the selection, adaptation and use of technological, scientific, literary, and artistic work of all kinds for the purpose of economic, social and cultural development. These activities are mainly aimed at strengthening the national infrastructures in the developing countries.

Plateful of Poison

Biman Basu[*]

HAVE you ever wondered how much risk you take when you sip a refreshing glass of canned juice, enjoy a sumptuous meal of grilled fish or pork, or for that matter, take a simple daily meal of dal and chapatis ? The chances are that in seven out of ten cases you will be taking in substances that are harmful to your health. Many of these harmful substances come from adulterants added to foodstuff by unscrupulous traders. But there are also other, harmful metals and chemicals that enter the human food chain from the environment.

The poisoning caused by harmful chemical substances or 'toxins' in food is generally termed 'food of the toxin in the form of vomiting, diarrhoea, respiratory troubles, etc. In a large number of cases, however, the effect of the toxin is not so obvious and the symptoms may appear after long-term, low-level consumption of the toxin. It was because of this that the toxic effects of many dangerous food contaminants remained unknown for a long time. Fortunately, extensive data are now available. Studies have brought to light the long-term toxic effects of harmful food contaminants like lead mercury, cadmium, chlorinated hydrocarbons and other chemicals.

Dangerous Chemicals

Dangerous chemicals present in food and water comprise a wide range of both organic and inorganic substances. Their sources are air pollutants deposited directly into food plants, pollutants from the soil or irrigation water on plants, or pollutants from the aquatic environment in fish and other aquatic organisms. Bacteria or moulds on foodstuff, substances produced during food manufacture and preparation, or contaminants present in water used for cooking are other sources. Effects of food poinsoing vary. They range from simple nausea and diarrhoea and damage to liver and kidney function to serious genetic disorders and even cancer.

Residues of pesticides applied to crops just before or after harvesting are often present in food consumed. Foods containing more than 'tolerance levels' of pesticide residues result in both acute and chronic toxicity. Contaminated bread prepared from wheat and other cereals treated with mercury containing fungicides has led to severe epidemics of poisoning in a number of countries. The largest was in Iran in 1971-72, and resulted in the admission of over six thousand patients to hospital and over five hundred deaths.

Toxic Chemicals

Toxic chemicals present in the soil are absorbed by plants. Such substances may enter the soil from the atomosphere, from contaminated irrigation water or from pesticides, fertilisers and sewage sludge applied to agricultural land. Mining and processing of metal ores and wastes from certain industrial manufacturing processes can cause intense local soil contamination with toxic metals like lead, zinc and cadmium. The best known epidemic of chronic cadmium poisoning (itai-itai disease) was in Japan in the 1940s and was caused by the consumption of rice and other foods which were heavily contaminated with cadmium. The metal came from irrigation water polluted with effluents from a zinc mine.

Toxic chemicals and heavy metals discharged into rivers, lakes and ponds may enter the human food chain via fish and other aquatic organisms or the plants on which they feed. Some chemicals, though harmless by themselves are concentrated or converted into highly dangerous products by organisms which can pose a serious threat to human health. Inorganic mercury compounds, for example, are harmless as they are easily excreted from the human body. But when discharged into the environment, inorganic mercury is converted into the organic compound methyl mercury which is highly toxic. Certain aquatic organisms also can concentrate methyl mercury in their bodies and when fish such as tuna are eaten by man the consequences can be dangerous. A well instance of large-scale mercury poisoning was the 'Minamata epidemic' in Japan in the early 1970s. Many fishermen died after eating mercury-contaminated fish, the survivors suffered severe neurological disturbances, including blindness stupor, coma and mental impairment.

In India now, tonnes of this lethal metal are being dumped into our water. The bulk of it comes from the caustic soda industries. According to a survey by the Central Board for the Prevention and Control of Water Pollution, "most of these factories which use mercury cells for caustic soda manufacture simply dump the brine mud, which carries the bulk of the mercury lost from the cells, to low-lying ground. As such it has free access to the water environment". The Board has estimated that "the mercury released by these units into water bodies can enable 16.6 million fish to carry the same risk dose to methyl mercury as was found in the Minamta case."

Major sources of Food Contaminants

Cadmium and lead art taken up by edible molluscs such as mussels and oysters. Fish and other aquatic organisms also accumulate dangerous compounds such as DDT and chemicals known as polychloro biphenyls (PCBs) which if consumed can lead to severe toxicity. PCBs can be transferred to milk and eggs through PCB-contaminated fishmeal in the feed of cows and poultry.

Another major source of food contaminants are the toxins produced during the growth of certain bacteria in foodstuff. They are among the most toxic substances and it is difficult to avoid some contamination. Crops grown in the tropical regions are most prone to contamination. Growing crops may be infected with the toxin-producing fungi any time before or during harvesting, or in transport and storage.

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[*] Council of Scientific and Industrial Research

In many cases, heat treatment and addition of preservatives such as salt and nitrates can eliminate or reduce the risks of contamination with fungal toxins, specially in case of stored or canned meat and fish products. But nitrate have their own problems. Nitrates are easily reduced by bacteria in the intestine to nitrites which react with chemicals called amines present in foodstuff to form nitrosamines. There is reason to believe that some nitrosamines are carcinogenic in man.

Foods may become contaminated with a variety of toxic chemicals during commercial processing and domestic cooking. For example, fresh fish and meat do not contain detectable amounts of the cancer-producing substances called polycyclic aromatic hydrocarbons (PAH). But trace amounts of such substances are found in smoked and grilled foods. In addition to PAH, smoked foods contain a wide variety of phenols and other harmful organic compounds which come from the smoke.

Canned Fruit juice

Another common cause of food poisoning is canned fruit juice. Canned juices are easily contaminated with tin from the can walls or lead from soldered side seams. The levels of lead in canned fods are five to twenty times higher than in fresh foods or foods packed in other types of containers.

But poisoning of food by these chemicals is avoidable. Alrtady corrective steps have been taken by many countries through legislation to prevent contamination of the environment by toxic chemicals. Some of them can be solved by better storage, use of non-toxic packaging material and safer methods of cooking. But considerable research is necessary in order to learn more about the different paths and fates of toxic chemicals in the environment and their long term health hazards. There is also need for better monitoring systems and control methods to prevent our daily food becoming our 'daily poison' □

(U. N. Feature)

Centre-Pivot Irrigation

SOME 28 years ago, American farmer Frank Zybach invented a machine that has revolutionized agricultural irrigation. It consists of a series of sprinkler nozzels mounted on a 15-centimeter pipe supported by seven mobile towers that rotate about a central point. Water is pumped into the pipe from a well at the center of the field, and the towers move the system in a cirle. Over the years several changes have been made in the original design. The moblie towers are today usually powered by electric or hydraulic motors that can be reversed, and the systems can be operated clockwise or counterclockwise. Large rubber tyres have replaced the old steel wheels.

The major advantage of this system is that it allows the automatic watering of large fields, without backbreaking labour. Secondly, it is so designed that a farmer can apply small amounts of water every few days. Such light and frequent application greatly increases the productivity of coarse or sandy soils with a low water-holding capacity.

Approximately 12 hours is the minimum time required to make a circular traverse ; two to three days is more normal. A farmer usually applies about 2.5 centimetres of water for each revolution of the pivot. The water comes from irrigation wells and is pumped from underground aquifers at about 3.400 litres per minute.

A third advantage of this system is that by applying fertilizers through the water supply line, nutrients can be administered selectively and timed for the crops needs. This cuts the amount of fertilizers used and reduces runoff.

One problem of the centre-pivot system is the amount of energy needed to pump water. Farmers in Nebraska, where the system originated, have taken the help of a scheduling programme. Data from local weather stations is fed into a computer network to calculate the amount of evapotranspiration for each crop daily and to monitor the soil's moisture content. When transpiration reaches a certain point, the computer advises the farmer to apply water. Such precise timing means that less water and less energy are used.

(*Span*)

Computer Aids

TIME is usually of crucial importance for farming operations in the United States and the computer helps avoid delays. Computer has been particularly successful in speeding delivery of service parts. American farmers can get needed spare parts within two days. A computer terminal helps track an item not in stock.

Computers are being put to several other uses now. By priming the computer with data about the soil and growing condition of his land, a farmer can find out the optimum time for planting or the estimated return on investment if he expands his farming area. Computerized milk records help tailor cattle feeds to the cow's production ability. Even the value of a farmer's own management time is being enhanced by computerized financial records and business analysis.

Industrial Growth During 1980-81

AN analysis of provisional production data for 30 selected industries which account for a combined weight of 47.6 per cent in the general index of industrial production shows a 5.5 per cent growth during April-March 1980-81 over the corresponding period a year preceding year.

In the basic industries group, there has been an increase in the production of coal (including lignite), saleable steel, aluminium, blister copper, electricity, cement and phosphatic fertiliser.

In the case of consumer industries group, except for a decline in production of cars, the other industries have shown an increase in production.

In the intermediate products industries, the output of cotton yarn, newsprint and jute manufactures rose whereas that of petroleum products declined.

Likewise, in regard to capital goods industries, all the four industries *viz.*, diesel engines (vehicular), railway wagons, tractors and commercial vehicles have shown positive rates of growth. □

BOOKS

Impact of Precious Stones on Human Life

Precious Stones That Heal—By N. N. Saha; Published by Allied Publishers Private Ltd., 13/14, Asaf Ali Road, New Delhi, Ist Published in 1980—pages 252; price Rs. 45.

THE book under review contains 22 chapters and the gem stones range from Pearl to Cat's Eye includeing Red Coral Emerald, White Coral, Yellow Sapphire, Blue Sapphire, Amethyst, Jade, Bapis Lazuli, Diamond and Gomedha.

The book seeks to highlight the utility of the above mentioned gem stones their role and impact on the life of human beings. The author, who is a gem therapist has fairly succeeded in his aim. Further, the book also outlines the value and healing powers of these gem stones with the help of certain examples related to the real life of human beings.

The author is of the opinion that there are certain incurable diseases such as muscular dystrophy, rheumatiod arthritis, cander, asthma, diabetes, mental retardation where the medical scientists have completely failed to provide any permanent cure or relief to the persons suffering from such diseases. What would be the harm if we take help of gem theraphy in providing adequate relief to the persons suffering from the diseases. One may agree or disagree with the conclusion and observations made by the author but undoubtedly one would agree that a book of the kind is certainly interesting and can proide a basis for the application of gem theraphy in such chronic diseases.

The author has rightly maintained that gem stones act just like vaccine for diseases and the victim should use a certain gem stone and may derive a permanent relief. Chapter 19 is very interesting and worth reading.

The author also devotes space to co-relate the gems theraphy and some phychological problems like juvenile delinquency and schizophrenia with the science of astrology gives a fine discussion on these subjects.

The book is logically presented and written in most comprehensive manner reflecting the author's capability, splendid efforts and experience in the field. he book would have been more helpful if the author had given a bibliography as well as the index.

Hence, this book must be a welcome addition to the existing literature on the subject and can be considered as an outstanding contribution for those seriously interested in this field.

Dr. Badar Alam Iqbal

Income for Women

Income Generating Activities for Women—Some Case Studies; The Indian Cooperative Union, AIFACS Buildings, New Delhi, pages 144; price not mentioned.

AT a time when there has been a decisive shift of stress from the traditional concept of associating women with only household chores they do to one of enabling them to take up some income generating and productive activities, the book under review has come not a day soon. The introduction of the book, with an uncharacteristic brevity, sums up the whole exercise as-not "so much on project evaluation as it is on transferring knowledge of the various elements of a successful attempt to those who wish to imitate it."

The sheer necessity to earn income to run the family is so much deepseated among rural people that the Sikki (Bihar) craftswomen, for instance, work even if the income is Rs. 20 per month only. As such the book criticses in no unequivocal terms the tendency among some people who hold a strong feeling that "generating employment, oriented towards women or the poor for a full employment policy, is expensive and a drain on the national exchequer".

The book reviews such odd projects as pappadmaking at Shri Griah Mahila Udyog Lijjatt Pappada, Valod (Gujrat). Hand Spinners at Tamil Nadu Sarvodaya Sangh, Tamil Nadu (Handloom, Khadi and Village Industries), Handloom preweaving at Dastakar Anjuman, Papmore (Jammu and Kashmir) and Sikki Grass Handicrafts Work in North Bihar (Handi crafts, All India Handicraft Board) in a bid to root out any prejudice from getting perpetuated against women employment and income generating opportunities through odd and small outlets.

The book stresses the significance of access to cheap credit and availability of child-care facilities, access to water and fuel at easier distances and notes that the provision of these small facilities can do more for women's earning capacity, than a new income-generating project because whatever the project these constraints may prevent women from taking up work on it.

Besides ensuring income to women, these projects do contribute to, what the book chooses to call, the inculcation of such virtues as commitment and motivation and a desire to excel in the jobs assigned. For instance, the Lajjat Group have strict ethical codes, and meticulous observation of these codes seems to be central to the organisation. Prayers, pledges, solidarity and service envelop the organisation. The book strikes a note of caution by maintaining that the description of projects contained in the book can at best be used to inspire confidence in development administrators to make them feel optimistic that changes can be made and that people's lives can be improved within the existing structures.

As any cut-to-pattern project runs the risk of bypassing or coldshouldering local interests and initiatives, the book points out that any tendency to blueprint schemes and projects by the implementing official instruments must be given up. To quote the book in this regard is not off the mark here. The book states that "if the government could take the view that their role is to respond to and facilitate initiatives and programmes that emerge from micro-level dynamics, it would lead to a more efficient use of resources than when they impose rigid blueprints of programmes which have worked successfully in other areas and situations.

G. Srinivasan

Urban Affairs

Land and Property values : An Analysis of environmental impact ; by R. K. Wishwakarma ; the IIPA, New Delhi, 1980.

THE center-iece of Shri Wishwakarma's book is the information gathered in a field study conducted in Delhi in December 1978. The study canvassed a brief questionnaire from 446 households located in 13 localities of "urban Delhi". A companion study, pertaining to the location of public utilities in urban Delhi which is cited in the book, presumably reveals how the households were chosen. Incidentally that study covered two more localities ; they have been left out because they were re-location colonies developed during the emergency period. An interesting Appendix in the book provides brief "general social and economic" profiles of the localities studied. Information gathered from the households has been supplemented by data secured from the property dealers of the respective localities and from a source termed by the author as market intelligence. The field study data have been subjected to some very assiduous statistical analysis.

The other noteworthy feature of the book is a display of analytical tools. One supposes that the tall stack of models utilised by the author, and the facility with which he moves about amidst functions, variables, factors and coefficients, will duly impress the urban econometrics buffs.

The book deals with a topic which commands wide interest among students of urban affairs. Its chapters and subtitles are organised like these in a doctoral thesis. The contents, however, belie the promise of the sub-titles in much the same way as the book itself has been over-described by its title. The technical analysis begins with the construction of a correlation "matrix"—not given in the book—which uses three dependent and 36 independent variables. The analysis quickly ,discard all but six independents to arrive at a "surrogates to urban environmental structure". The analysis is then taken over by the models, which chew up the raw data time and again to give tablefuls of regression coefficients, determination coefficients, and such. The work has evidently entailed much labour of computation.

The results of the statistical exertions have been set forth in a commentary accompanying the tables. But it is devoid of any deep insights into those facets of the land/property market which supposed to be influenced by the "environmental structure" postulated by the author.

Indeed it is hard to discern the conclusions and lessons of the author's study because of the fog of repititive and ungrammatical verbiage which obscures his thoughts from the reader. One of the conclusions of the author, perhaps the main one, appears to be that the "land value model" in the book is a success, and it comes as a poorly supported surprise. Another discernible conclusion is that capital expenditure in Delhi seems to have a bias towards the provision of services and amenities for the "better off" localities. At some places, the author has made trenchant comments about the miserable plight of the tenants due to disorganisation, the exploitation of the landlords, their strong lobby, and the full grip held by the landlords over the land market. These statements appears to be based on perceptions derived from data secured elsewhere and not gathered, alas, by the field survey which is book's foundation.

Shri Wiswakarma's effort has been termed, in the Foreward, as a pioneering study. If this is so, the author should be commended for his venturesome spirit atleast because the need to understand the forces that operate behind land and property values in the cities of our country is great.

M. A. S. Rajan.

Distribution System of Foodgrains

State in Foodgrain Trade in India by Birla Institute of Scientific Research and Economic Research Division, New Delhi. Vision Books, New Delhi, 1980. Pages 104, Rs. 40.00.

THE book under review is an evaluation of the working of the public distribution system of foodgrains with special reference to the Food Corporation of India (FCI).

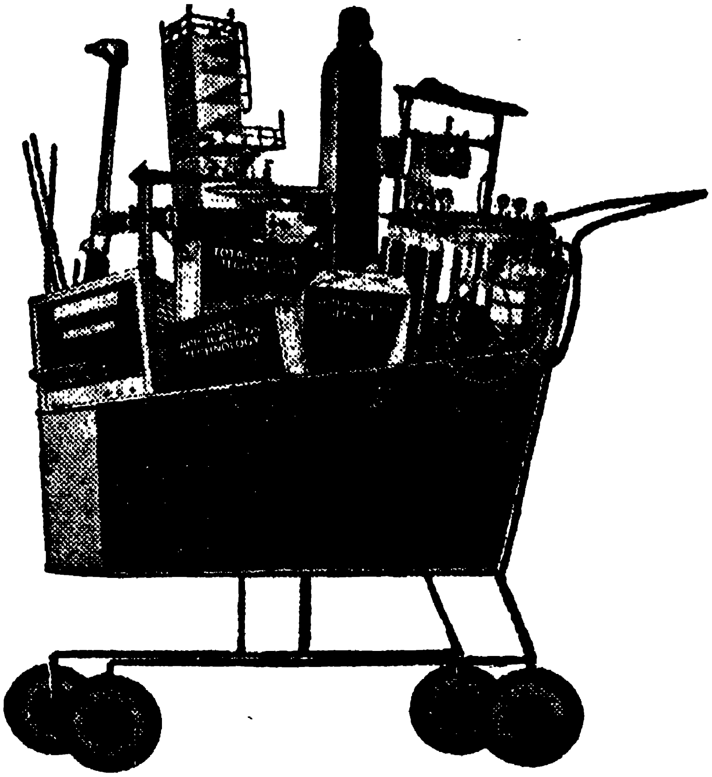
The present study attempts to examine as to how far the FCI (which came into being on 1 January 1965, and now the principal autonomous agency of the Government of India for handling procurement, imports, storage and distribution of foodgrains and for implementing the national food policy) and its sister agencies have succeeded in fulfilling these objectives, whether the farmer, in fact, has been able to obtain the fair minimum prices fixed by the government, whether the consumer has obtained a fair deal and whether the stocks that have been built up by the Corporation during the years of bountiful crops, have been stored and cared for in a manner most conductive to the maintenance of quality and quantity; what has been the cost to the nation as also to the consumer of the operations of this monopolistic set up and whether it has functioned on commercial lines.

It points out that to recover the total costs of the public distribution system i. e., to carry grains from producer to the consumer, the minimum issue price for wheat delivered to the consumers from fair price shops has to be fixed at about Rs. 210 per quintal which means a mark up of about 90 to 95 percent over the cost, paid for the naked grain. It refers to many other significant aspects of the functioning of the FCI, such as, unnecessary movement of foodgrains, long leads, defective storage, deterioration in the quality and the physical loss that takes place etc. It also questions as to in what condition the buffer stocks which are supposed to be over 18 million tonnes, are at present and whether actual checks are made from time to time to ensure that the entire quantity of food grains as recorded in the books do actually exist and are suitable for human consumption.

To sum up, the study of the operational practices and costs of the public distribution system managed by FCI and its sister agencies, as evaluated in this handy and very useful reference publication, shows that the foodgrain trade in its hands has become inordinately expensive and uneconomic. This piece of research is for further research and reference. No library should afford to remin without a copy of it.

S. K. Dhawan

THE TECHNOLOGISTS' SUPERMARKET



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STEP BY STEP

Creating Jobs for Themselves

SHRI T. V. Someswara Rao of Anakapalli went to the Employment Exchange after his graduation in 1980. He found that there were hundreds like him waiting for white collar jobs. A retired official of the Animal Husbandry Department advised him to establish poultry unit. For fiance the Andhra Bank, Anakapalli came to his rescue and advanced Rs. 5,000. Shri Someswara Rao purchased one hundred birds, got a site on lease and started his poultry unit. His income from selling broilers in the market is now sufficient to enable him to repay the loan taken from the bank and he hopes to establish himself firmly in this business in due course. At 20 Shri Someswara is full of confidence.

FPO, Visakhapatnam

Five graduate young men of Mandi town in Himachal Pradesh, decided to start a fruit and vegetables stall till they got a white collar job. Each one of them contributed some money for this purpose. On the very first day they were able to sell fruits and vegetables worth Rs. 350/-. Though two of these five young boys have still a mind to go in for some government job, three of them are now fully interested in running this shop well. These young boys now propose to take a loan from some nationalised bank to expand their business further. They have, thus, found a way to employ themselves permanently.

—FPO, Mandi

Gowrishankar Gowda, a young engineer farmer from Bolbail near Sullia in South Kanara district is not yet 25 and has set up a unique factory producing dinner plates, spoons, saucers and ice cream cups, from the areca leaves which were hitherto being dumped as waste material and burnt away. Gowrishankar has invested Rs. 10,000 on two simple and small machines which produce the cups and spoons

FPO, Mangalore

Shri Ramesh Tammewar a graduate farmer of Madnoor in Nizamabad district has taken up agriculture seriously He had about 9 hectare of unirrigated land and a dried up well to begin with. He obtained a loan of Rs. 9,000/-, got a bore drilled, laid cement pipes to carry water to the fields and got a parapet wall constructed around the well. After this he was able to irrigate 2 hectares of land in which he raised paddy. Then he took another loan of Rs. 7,000/- bought seeds, fertilizers, insecticides, sprayer etc. He grew cotton, chillies, jowar and groundnut. As a result of this he had an income of Rs. 15,000/- in one year and happily paid back the loans. He says that his cotton yield has now doubled and jowar yield trebled. Not only that, he is now able to raise three crops in a year in the same field. This year he has further diversified his crop strategy and planted plantain saplings in 1-1/2 acres. Thus, Ramesh has become a progressive farmer in the village, always eager to increase agricultural production by modern methods.

FPO, Nizamabad

Rama Nand Sagar, 28, is son of a poor marginal farmer of village Chowdriyan, block Partawal of Gorakhpur district. At the age of four he was struck by polio and lost the vitality of his left leg completely. With perseverence he was able to do his M.A. from Gorakhpur University and also got a professional diploma in photography. A local nationalised bank extended its help to him with an offer of loan to establish a studio at a small township of Kasta in district Deoria. He is now satisfied to some extent and is earning his living. "I am able—I can" are the words uttered by this disabled man, whenever one may talk to him.

FPO, Gorakhpur

Some small entrepreuners of Badethi, a sleepy village about 8 km. from Uttarkashi town, have harnessed the waters of fastflowing Badethi *gaad* (a rivulet) to operate four flour mills situated close to the main road leading to Uttarkashi. Since the water flow in the *gaad* is perennial, these four mills continue to operate even when the power operated flour mills at Uttarkashi town stop working due to erratic power supply. These four mills have provided remunerative employment, for at least 20 persons.

FPO, Uttarkashi

Cooperative Effort

Malira village in Charthwal block in Muzaffarnagar district is inhabited by about 1000 people. In this village twenty underprivileged families were faced with grim poverty. Some members of these families had to trek 18 kilometres to and fro, everyday to earn their daily wages in the city. They had also to depend on the village money lenders who exploited them badly. One day they sat together and decided to start a cooperative dairy to improve their lot. Each family decided to contribute Rs. 10 per week and thus, in a year they were able to collect about Rs. 9,600. With this amount they purchased four buffaloes. Each of these on an average gives 8 litres of milk per day. They are now supplying about 32 litres of milk everyday to the city at the rate of Rs. 2.75 per litre and the money earned through the project is distributed equally among these families. The success of their cooperative efforts has given them great confidence to face life boldly.

FPO, Muzaffarnagar

Eradication of Dowry

The villagers of Dharlata, tehsil Billawar, district, Kathua (J & K) have formed an organisation called 'Kisan Sudhar Shabha'. Shri Harichand Jalmaria a law student, who is also the Chairman of the said Sabha, has been persistently working towards the formation of this Sabha, which has so far enrolled members from Ramnagar, Billawar and Basohi tehsils The villagers have decided that no dowry will be given or accepted in their village or in the nearby villages. Four marriages have actually been solemnised in the village in which no dowry was given, and three more such marriages are expected to be solemnised soon.

FPO. KATHUA

TRENDS

Much Scope for Energy Saving

EVEN if energy saving measures are adopted, the demand for energy by the turn of the century in India would be nearly three times of what it is at present, said Shri Mohd. Fazal, Member, Planning Commission.

According to a study, a saving potential of 12 to 13 per cent of furnace oil exists in the industrial sector. he added.

Shri Fazal made these marks while inaugurating a seminar on energy conservation in sugar industry, held recently at New Delhi. He stated that if economy measures are taken, the steam consumption in sugar industry could be reduced upto 25 per cent. He appreciated the efforts of the sugar industry in reducing the consumption of bagasse as fuel and using it for paper making.

"No Diversion of Funds", Says Tiwari

"IT is necessary to adhere to the agreed Plan outlay and targets as far as possible" for the achievement of the Plan objectives, urged Shri N D. Tiwari, Planning Minister, in a letter addressed to all the Chief Ministers.

Shri Tiwari cautioned the CMs against diverting the funds provided for specific works, to other purposes.

Shri Tiwari has asked the Chief Ministers to undertake regular review of major Plan programmes. The reviews should include appraisal of the Government's effodts towards mobilisation of additional resources for financing the agreed annual Plan outlays.

The States have been asked to send to the Planning Commission quarterly reports on the progress of various schemes both in physical and financial terms. Meanwhile, the Planning Commission has initiated a quick review of the Plan programmes with the Chief Ministers. Shri Mohammed Fazal, Member of the Commission, began this exercise with a review of Madhya Pradesh Plan with the Chief Minister, Shri Arjun Singh in Bhopal. Later he would go to other States. The objective of the exercise is to assess performance of Plan projects in 1980-81 and evolve a "Plan of action" for 1981-82 more specifically in sectors like power, industry, transport, social forestry, housing and urban development, water supply, in problem areas. The progress of the national rural employment and integrated rural development programmes will be assessed.

Plan Investment in Real Terms : Tiwari

"IF Plan investment has to be maintained in real terms at the same level as envisaged in the plan, it will have to be up in nominal terms to take care of inflation", said Shri N. D. Tiwari, Planning Minister while addressing a luncheon meeting organised by the Association of Indian Engineering Industry recently. Shri Tiwari said that investments projected in the plan were on the basis of 1979-80 prices

Referring to the current economic situation, the Minister said that there were hopeful signs of the economy picking up in spite of bottlenecks in certain spheres. Agricultural production was good and industrial production in many vital areas, like steel and fertilisers, had picked up due to the concerted attention given to the development of infrastrucural facilities. He stressed the need for planned growth of agriculture and industry, each supporting the other.

Shri Tiwari emphasied the important role the private sector had to play in the implementation of the sixth Five Year Plan. The sector had to build capacity for a large variety of capital, intermediate and durable consumer goods. Thus, the private sector, in general and the engineering industry in particular, had to face the challenges in the field of increasing productivity, technology upgradation, energy conservation and prompt deliveries.

Dismissing the problem of energy as not so formidable, Shri Tiwari said a multipronged strategy of energy conservation and rapid development of domestic resources, particularly coal and petroleum, could reduce the country's dependence on imports.

Shri Tiwari asked the industry to strengthen its capabilities to take up turnkey projects, both within the country and abroad. The Minister said that the plan aimed at an overall growth rate of 5.2 per cent per annum, providing for four per cent growth rate in agriculture and 7 per cent in industry.

Device to Locate Potable Water

THE State-owned Uttar Pradesh Electronics Corporation (Uptron) has introduced an indigenously produced electronic gadget that will help find sources of potable water.

The company also supplies ground water data loggers and has set up the country's largest aluminium capacitor manufacturing unit. Uptron is producing over 36,000 T.V. sets annually.

Free Limbs for Haryana Handicapped

THE Haryana Government has decided to give free artificaial limbs to the handicapped in the State, and is preparing to set up a special cell for them in medical colleges with help from the Rohtak Red Cross Society. The State Social Welfare Department will meet the entire cost of the unit.

More Medical Facilities for Women

HARYANA Chief Minister, Shri Bhajajn Lal, while recently addressing a Women's Sammelan in Kurukshetra declared that every rural dispensary in Haryana would have a Lady Doctor or a nurse in order to provide more medical facilities to rural women. Shri Bhajan Lal also announced that women would be given preference in teaching and other similar professions and laws regarding dowry will be strictly enforced.

National Rural Employment Programme

Continued from cover II

A major part of the wages were to be paid in foodgrains at fair prices. The scheme aims not only at creating jobs but also in constructing community assets and strengthening rural infrastructure. In less than four years of operation, over 10 lakh hectares were brought under irrigation. Another 4.21 lakh hectares have been protected against floods and 1.5 lakh hectares become more cultivable owing to construction of field channels, land levelling and other on-farm-development works. More than six lakh kilometres of roads have been newly built or old ones repaired. Much-needed school building, panchayat halls and similar works built or repaired number 77,000. The volume of jobs generated has gone up by twelve times from 450 lakh man-days of employment in the first year. The poor people's need for jobs, grain and money was utmost during the drought of 1979-80. In the last two months of the year 300,000 tonnes of grains were distributed under the programme and the employment generated during the year as a whole was as high as 5400 lakh man-days. The drought prolonged into 1980-81, so also the tempo of the programme. An amount of Rs. 340 crores was spent on it during the year. The foodgrains used for the programme during these four years exceed 58 lakh tonnes, worth about Rs. 900 crores.

The programme developed communication facilities, marketability of foodgrains, showed employment to many skilled and unskilled artisans, stabilised foodgrain prices and improved the wages.

Initially, there was dearth of schemes as well as planning. Non-availability of construction materials continues to be a major constraint. In the payment of wages in kind, the timely supply of grains is crucial. Many areas experienced the difficulty of grain supply, thus exposing the workers to exploitation.

A more serious miscarriage of the scheme has been cited by the official study. The benefits of permanent nature flowing from the assets created mostly went to the upper strata of the village. This would further widen the income disparities. When the costs of durable and non-durable assets are compared, the durable ones cost Rs. 8 per man day as against Rs. 5 for others. So the scheme was restructured as the National Rural Employment Programme and incorporated in the current Plan with the same, objectives. The emphasis is on preparing a number of detailed projects for taking up. Ten per cent of the funds have been earmarked for constructing assets like common house sites, drinking water wells and community irrigation wells which directly benefit scheduled castes and tribes. Afforestation and social forestry schemes which benefit the weaker sections will get 10 per cent of the funds. A major departure relates to the provision of cash assistance to the states to create durable assets and to cover cash wages. Earlier, the Union Government supplied foodgrains only. In 1980, the centre released Rs. 92 crores towards this.

The amount of Rs. 980 crores to be spent on NREP is one of the largest outlays on any one single target oriented rural programme in the Plan. More than 80 per cent of the participants in it are in the age-group of 16—45 years. Seven out of 10 persons are labourers.

Under NREP communication facilities in countryside have been improved. Photo shows a rural road being laid.

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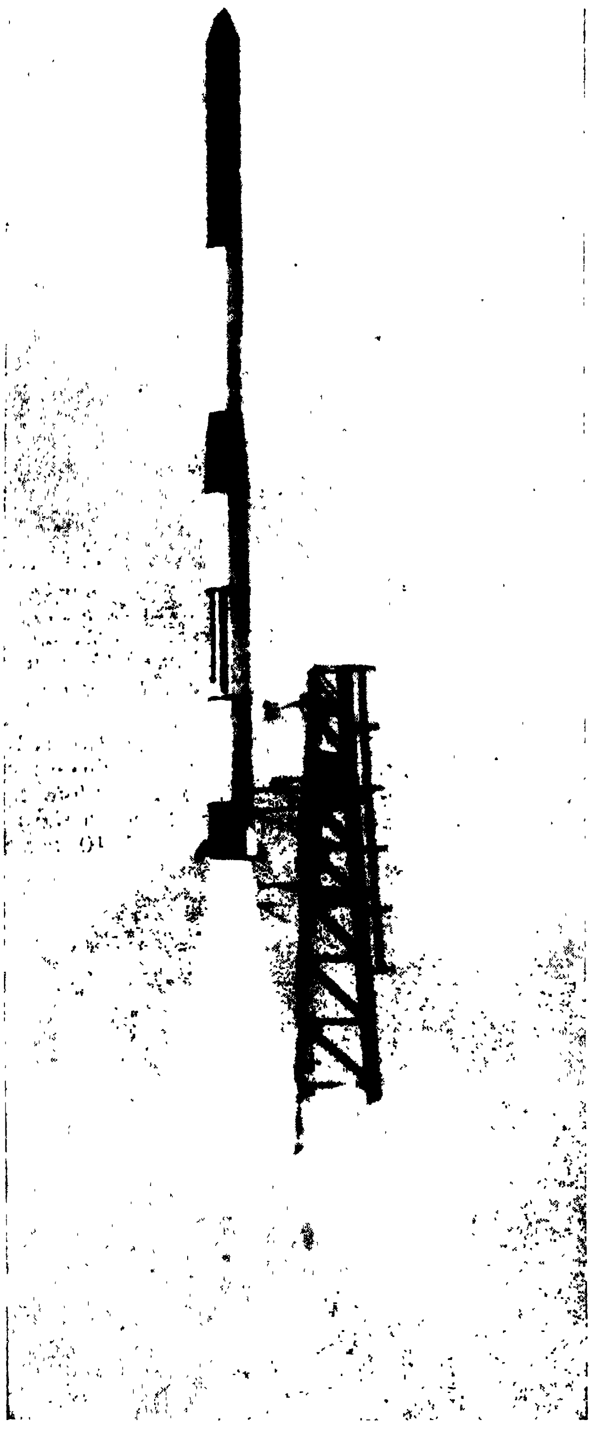

Rohini II satellite atop the indigenously bulit statellite launch vehicle (SLV-3) was hurled into space from Sriharikota on May 31, 1981. The satellite was designed to evaluate the performance of the land mark sensor developed in the country. But unfortunately it could not fulfil its mission. Due to some malfunction the launch rocket failed to place the Rohini at the desired altitude and so it could remain in space only for nine days instead of 90 days as orginally planned.

India's Experiment in Deep Sea Mining

JUST recently India became the first country in the Third World to achieve the distinction of exploring and collecting samples of polymetallic nodules from the Indian Ocean. These samples were hauled up on 26th January, 1981 from a depth of 3.6 km by the research Vessel Gaveshani of the National Institute of Oceanography, Goa.

High concenrations are supposed to occur in the southern Indian Ocean and also in the Arabian Sea Basin. The occurence of nodules is also reported from the Somali Basin. Nevertheless, the highest nodule concentrations are likely to occur in the deeper parts of the Indian Ocean which is of much interest to us, as these areas have largely remained unexplored.

The deep sea polymetallic nodules collected by the scientists of National Institute of Oceanography on board are black, potato-shaped balls found in fairly large areas of the deep sea. They range upto 8.3 cm in size and upto 200 gm in weight and occur from about 3.5 km to 6 km depth-range covering an area of about 10 million square km in the Indian Ocean which is only next to the area of the Pacific Ocean. Since the Indian Ocean is largely bordered by developing countries, no country has made an attempt to explore these deposits. The nodules collected by Gaveshani have a concentration ranging from 1 kg per square metre of the sea bed surface to about 5 kg per square metre. According to US estimates in the Pacific, if the sea bed concentration of nodule exceeds 2.5 kg, it is considered to be economically attractive. Hence the average concentration of about 3 to 5 kg per square metre in the Indian Ocean can be taken as quite promising.

During the exploration of nodules the research vessel Gaveshani of India worked in far-off areas of the Indian Ocean and its survey included extensive seismic profiling, magnetics followed by sea-bed photography by remote-controlled camera and the collection of samples by using grabs, dredges and boomerang grabs. In addition to the colection of samples, the vessel also obtained some baseline date on the physics, chemistry and biology of the deep sea, which will provide additional information on the impact of mining in the deep ocean environment. Encouraged by the results of this survey, the scientists of NIO are planning to extend the survey of nodules to other deeper regions of he Indian Ocean, where large areas are expected to be carpeted with higher grade polymetallic nodules.

Nodules are known to occur in shallow marine areas also and along the continental margins but they differ from the deep sea nodules in their morphological characters and in their metal components.

The deep sea nodules, besides manganese and iron, contain fairly high concentrations of nickel, copper, cobalt and zinc and also several rare earth elements. However, the concentration of manganese in the Pacific nodules ranges from 20 to 30 per cent. The concentration of manganese in the Atlantic Ocean nodules ranges between 10 and 15 per cent. In the case of the Indian Ocean nodules, because of the limited sampling conducted earlier, the details of manganese concentration are not properly known (Countesy, AIR).

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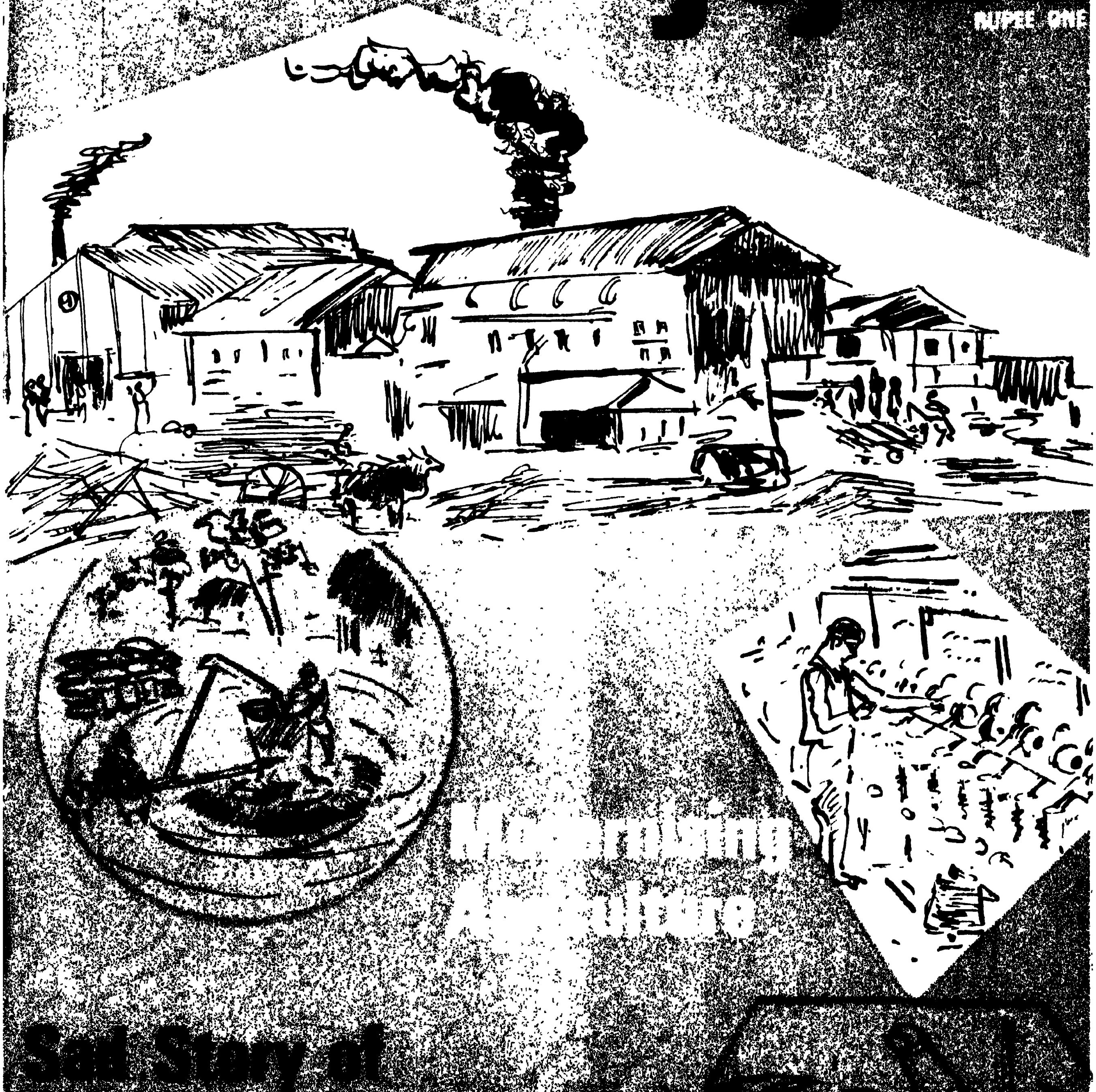
Yojana

RUPEE ONE

Improving Plan Implementation



Modernising Agriculture

Sad Story of Development [illegible]

Kumari Kumud Joshi, Deputy Minister for Information and Broadcasting and Sri M. G. Ramachandran, Chief Minister of Tamil Nadu looking at the books on display in the Book Exhibition organised by the Publications Division, at Madras on May 16, 1981 and inaugurated by the Chief Minister

Sri D. S. Mehta, Director, Publications Division, receiving Sri M. G. Ramachandran, Chief Minister of Tamil Nadu at the function of inauguration of show room of Sales Emporium of the Publications Division

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36	72.54	725.42	7,254.20	36,271.01
60	59.53	595.38	5,953.86	29,769.31
84	50.08	500.87	5,008.77	25,043.85
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Signing the agreement for Hazira Project in London (Seated from left) Mr. Paul Pothen, Managing Director, KRIBHCO. Mr Eric Holt, Director, M W Kellogg Co. Mr K.K. Abraham General Manager, FEDO. (Standing) Mr. William Payne, Project Manager, M W Kellogg Co.

M W KELLOGG

provides the front-end engineering

When Krishak Bharati Co-operative Limited (KRIBHCO) wanted two 1350 t.p.d. ammonia plants engineered and erected, Kellogg of U.S.A. was chosen for the project. The Rs 950 crore Hazira Project will have the largest and the most modern ammonia plants to be built in India.

Kellogg, with extensive experience in design and construction of a vast majority of ammonia plants the world over, will provide the process design through their world head quarters in Houston. They will procure the critical equipment and supply the engineering, construction and commissioning supervision.

FEDO

provides engineering designs and detailing

Backed by FACT amongst the first manufacturers of ammonia in India FEDO, the leading engineering consultant and contractor for chemical industries in India has been selected for the Hazira Project of KRIBHCO.

FEDO's expert engineers, with extensive experience in chemical technology, will provide the engineering designs and detailing. They will undertake Indian purchases and other world-wide procurement. FEDO along with Kellogg will also be responsible for inspection, expediting, traffic assistance, construction management and pre-commissioning tests of these ammonia plants.

AMMONIA: Transfer of technology

Under a separate Transfer of Technology agreement with M W Kellogg Company of U.S.A. FEDO will receive the technology and training to design ammonia plants of capacities up to 1500 t.p.d. With the completion of this transfer, FEDO will be in a position to take on major assignments for new ammonia plants to be set up in India in future.

FEDO's association with Kellogg signifies international recognition of its expertise in ammonia technology and will result in a great leap forward in its experience in designing and constructing ammonia plants.

FEDO FACT

FACT ENGINEERING AND DESIGN ORGANISATION

A Division of:
THE FERTILISERS AND CHEMICALS TRAVANCORE LIMITED
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Editorial

Sick Industries

STATE CARE for the private sick industries is a peculiar phenomenon in our country. In other countries, such industries are normally left to their own fate, with the result they take precautions not to fall ill or find their own remedies at least to reduce the damage. But in our country the government has to go to the aid of sick units due to various factors. Firstly, there is the need for economic development and maintaining production. Then, there is the human consideration of providing livelihood to the affected workers. There are also local pressures which are difficult to resist in a democratic set-up. But in many cases the main beneficiaries are only the owners of these industries, who after extracting the maximum gains from them and after siphoning off their resources to more profitable avenues leave them to public medicare. This is the major cause for the alarming increase in the incidence of industrial sickness in the private sector, which always claims to be more efficient than the public sector.

The Government had been taking over many such units with a view to nursing them back to health and handing them over to their original owners or to merge them with larger units. But, contrary to this intention, the recovery of these units is very slow, and the government has to underwrite more and more losses. They also tarnish the image of the public sector.

Under these circumstances, it is heartening to know that the Union Ministry of Industry has thoroughly reviewed this problem and drawn up a new policy paper, which is now being examined by a Cabinet Committee. The main emphasis of the proposed new policy is on coming to a quick decision on the final fate of the sick units since drifting to involuntary nationalisation leads to avoidable losses and taking over of irredeemable units. The Ministry feels that in the case of large enterprises only if critical production is threatened and a great number of workers cannot be rehabilitated, nationalisation should be resorted to. But the decision on nationalisation or merger with another private sector industry or the denotifying of the take-over, should be made within six months of the taking over. This will also help in utilising public resources to buy new assets rather than to meet recurring cash losses. The Ministry also thinks that banks and other public financial institutions, which are in a position to diagnose sickness at an early stage, should caution the Government immediately so that remedial action could be taken before the condition becomes serious.

It is hoped that the final policy that may emerge will not only protect the interests of production and labour but those of the tax-paying public, and will also lay more stress on the preventive than on the curative aspect. In most cases it may be better to start a new unit than to nationalise an old one. As the Union Minister for Commerce recently observed the time has now come to shift the emphasis from 'social commitment' to a justification of public investment of money and expertise in sick units. ☐

Monitoring of Plan Implementation

P. R. Dubhashi*

PLANNING is not an end in itself. It is a means to an end, and the end is the achievement of pre-determined goals. These goals, to start with, are couched in aggregate terms such as increasing gross national product and per capita income, the distribution of the gross national product in a more equitable manner and the provision of full employment opportunities. However, these aggregate national goals have to be split sector-wise and sub-sector-wise to arrive at various physical targets in terms of quantities of foodgrains, coal or steel or the wagons of cargo and number of passengers moved by the railways. Related to these physical targets are financial allocations. However mere higher financial allocations do not result in physical achievements. There has to be the necessary organisation and personnel who could carry out these programmes making best use of financial resources to achieve maximum results. Every plan scheme or project must, therefore, take into account the organisational machinery through which plans and programmes will be implemented. A plan which takes care of the efficiency in implementation would be able to accomplish much more than what it seeks to do; that too at the least possible cost.

Uunfortunately, Indian planning has been deficient in this respect all these years. The contemplated results are not accomplished in terms of the increase in the national product. While we have been aiming at a steady growth rate of five per cent through all our Five Years Plans, in reality it has been around three per cent. Also because of cost escalation and inflation, the physical plan has been generally smaller than the financial plan. Because of less than optimum efficiency in the implementation of plan programmes the capital output ratio has shown a tendency to rise. All this underlines the importance of paying continuous attention of setting up a strong and efficient machinery for implementation of plan schemes and their constant monitoring and evaluation with a view to ensure satisfactory result. These aspects have been sadly neglected in the past and immediate steps need to be taken up to improve the monitoring of implementation. The Prime Minister has taken keen interest in this and has asked the Planning Commission to undertake monitoring of plan implementation. This is undoubtedly a step in the right direction but the lead taken in this respect should not mean action only at the national level. Similar, and even more intensive action needs to be taken at all other levels. Indeed as we go nearer the fields, monitoring has to be all the more intensive. There should be close and continuous supervision over the actual implementation of plan programmes in the field and their periodic monitoring and evaluation.

The monitoring of implementation, however, is not as easy as it looks. In the past, monitoring has simply meant checking of expenditure. This is not only unsatisfactory but even counter-productive. Often it results in the rush of expenditure in the closing months of the financial year. What is required is monitoring and evaluation with reference to the real objectives of a project and the real objectives are not in either financial terms or even physical terms. The manner in which the results are obtained is equally important. If the results are accomplished by wrong means, there may be a temporary gain but a set-back in the long run. For example, if the programmes of family welfare are implemented through coercion, targets regarding tubectomy or vasectomy may be accomplished. But use of coercive methods may create such a strong revulsion against the programmes that they may suffer a long-term set back. What is required is the need to educate the targets group and elicit their voluntary participation and cooperation. This aspect is imporant in respect of most of our programmes.

Thus, while data and statistics are important, evaluation and monitoring are not entirely a quantitative process. There is also a qualitative process involved. A satisfactory system of monitoring and evaluation should take care of the qualitative, no less than the quantitative aspects of the plan implementation.

Monitoring and evaluation ought to take care of the "ultimate", "penultimate" as well as "instrumental" targets and goals of every plan programme. The "ultimate targets" are the final objectives of a project or scheme in terms of output or generation of employment opportunities. The "penultimate targets" are one stage before the realisation of the ultimate targets. Thus, if the ultimate target is in terms of quantities of foodgrains produced, the "penultimate targets" may have to be in terms of distribution of seeds, fertilisers and insecticides or utilisation of irrigation potential. The "instrumental targets" have to be in terms of the means through which the penultimate and ultimate targets are accomplished. Thus, they may be in terms of the centres for the distribution of inputs, the personnel incharge of such centres, construction of wells and field channels necessary to create the irrigation potential, the field organisation required for discharging this work, etc. One of the defects of our planning is that while "ultimate targets" are fixed, 'penultimate" and "instrumental targets" are left vague. The increasing of area under high yielding varieties of seeds is a penultimate goal. The realisation of this penultimate goal would be meaningless unless the spread of high yielding varieties results in higher production of foodgrains or other commercial crops. At a recent meeting of the Agriculture Production Commissioners, it was noticed that this had actually happened. This happened because high yielding varities of seeds have to be accompanied by increased supply of fertilisers and irrigation water. HYV programme has to be a part of a package; and where the package is missing, realisation of goals in only one item does not show results. In some States the increase in agricultural productivity or production was not commensurate with increase in area under high yielding varieties. Plan implementation requires coordination without which programmes may go on in a lop-sided fashion and results would not be accomplished. Monitoring and evaluation, therefore, has to take note of the realisation of the ultimate goals or the ultimate impact of planning and canno' stop short of them and be confined to some instrumental action.

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*Additional Secretary, Ministry of Agriculture, Department of Agriculture and Cooperation.

Plan programmes can broadly be divided into two components. The first relates to the activities where investment is concentrated and the second where it is dispersed. Irrigation and hydro-electric projects and establishment of plants and erection of building fall in the first category while such schemes relating to agriculture as agricultural extension, cooperative development or crop production would fall in the second category. The success of planning in the first component substantially depends on the organised machinery of Government but the success of the schemes falling in the latter component depends as much on people's initiative as on machinery of Government. Indeed, in respect of these schemes, the main role of the machinery of Government is to motivate and activise millions of farmers on whose efforts depends the accomplishment of goals.

Monitoring and evaluation of activities falling in the first category is comparatively much easier than of those falling in the second category. In spite of this, surprisingly enough, evaluators have paid more attention to the latter than to the former. This balance needs to be set right. There has been a lot of schedule slippage in respect of several irrigation and hydro-electric projects and establishment of public enterprises resulting in considerable losses. An evaluation of these projects would have brought out the deficiencies. One of them might be dispersal of resources over too large a number of projects leading to the delayed completion of several projects. In a hurry to bring in too many projects in the ambit of planning, no more than token provisions are made in respect of several projects which then go on hibernating for any number of years. This is hardly a way of making optimum use of plan resources.

Expansion of the public sector has been an important feature of planning in our country. But it is sad to reflect that massive investment in public sector enterprises has not yielded the necessary dividend. It is necessary to undertake comprehensive evaluation of the public sector enterprises in order to set right the deficiencies of the past.

Evaluation has to go deeper than doing mere cost-benefit analysis. It must bring out latent as well as patent deficiencies in organisations, institutions and personnel so that these could be set right. For evaluation of this sort, it might well be necessary to follow the case study method to supplement the methods of collection of data en mass and their analysis.

While evaluation may require a specialised machinery monitoring has to be an in-built feature of the normal machinery of administration For every important scheme or enterprise, there should be a Review and Monitoring Committee in every department or organisation of Government. On this Review Committee, there should be all persons connected with that particular scheme or enterprise. The Review Committee ought to meet periodically at regular intervals. It should have a regular management information system which would feed the Review Committee regularly in terms in what have been called the instrumental, penultimate and ultimate targets. The Review Committee ought to pin point shortfalls or deficiencies whenever they occur and immediately set about rectifying these deficiencies before any further damage is done. An alert machinery for review and monitoring can save much wastage of resources and enable plan progress to be made on the right lines. ☐

A Cheap Storage of Meat

CHEAP and simple method could greatly increase the storage life of meat without recourse to freezing has been developed at the Swedish Meat Research Institute. Under the new method fresh meat is exposed to 100 per cent carbon dioxide in packagings, containers or store rooms. This cheap gas greatly inhibits the spread of harmful bacteria while having no effect on beneficial lactic acid bacteria. One minor drawback is that the meat takes on a greyish colour but this vanishes when it is once more exposed to oxygen.

The method helps extend the storage life of fresh meat fivefold. However, a much greater prolongation can be obtained by raising the atmospheric pressure to five atg. In this manner fresh pork could be stored without deterioration for fully 120 days instead of the usual 10 days. ☐

Correction

In some copies of our issue dated 1–15 July 1981, an illustration block on Page 17 was set up wrongly. The error is very much regretted.

—Ed.

Sixth Plan : Modernising Agriculture

Dr. M. S. Swaminathan*

MODERNISATION in any field of human activity involves evolutionary changes which help to bridge the gap between available knowhow and its practical application. It is hence a dynamic process. Its meaning and methods will vary with both time and place. For example, in the Punjab, where farmers now produce nearly one per cent of the world's foodgrain output, modernisation of agriculture means the spread of tubewells, tractors, fertilizer, high-yielding strains of both plants and dairy cattle and better marketing arrangements. On the other hand, modernisation in the context of a State like Arunachal Pradesh where farmers still adopt shifting cultivation, or jhuming, as the principal method of land use, modernisation would imply the replacement of shifting cultivation with settled agriculture. In West Bengal and Kerala where land is the most important limiting factor because of high population density, modernisation would mean maximisation of production per units of land and labour. This will call for the introduction of land use patterns which can help to optimise production per cubic volumes of both air and soil. In contrast, in western Rajasthan where water and not land is the most limiting factor, modernisation would call for the maximisation of food output per unit of water. The agricultural strategy developed for the Sixth Plan period hence places emphasis on a systems and location specific approach to technology choice and transfer.

The world today is witnessing two contrasting trends of evolution of farm management system. In one system occurring in countries like the United States, Canada, Australia, USSR and countries in Eastern Europe, the size of an operational holding is getting larger and larger. In the other system found in manv of the developing countries including ours, the size of a farm holding is tending to get smaller and smaller. We can thus recognise. on the one hand. large super farms exceeding 1000 hectares in size managed on the basis of capital and energy intensive and labour displacing technology, and on the other. small farms of less than 5 hectares operated largely with family labour and with very little capital or energy investment.

A good example of super-farm operation is the production of rice in California. This is one of the most highly mechanised agricultural operations in the world, including the levelling of fields by laser beam, the sowing of seed by airplane and the harvesting of the crop by special combines. In the super-frame operations, there is a perfect linkage between production and post-harvest operations. Cropping schedules are designed on the basis of computer analysis of cost, risk and return.

The super-farm model of production is also the method of choice in countries where land is socially owned. In the USSR, for example, super farm operations largely consist of big State|collective farms. Since the land is socially owned, a collective farm is run like any other State enterprise. The farms are highly mechanised and because of weather conditions as well as labour shortage in the USSR, energy consumption in these farms also tends to be very high.

Joint Efforts

The third kind of super-farm model is the one found in several socialist countries in Eastern Europe. This involves the organisation of a large continuous area into an agro-industrial complex. Each agro-industrial complex has a land use model based upon both ecological and economic considerations. Production, processing and marketing are linked together into an integrated system. The complex provides the needed facilities to the farming families who are members of the cooperative which manages the complex. Land is not individually owned but the members of the complex have a sense of belonging because of the institutional devices introduced for promoting cooperative management of farm operations. In this system, the country consists of a series of agro-industrial complexes. If we are to translate this model in our context, all our 5,000 blocks can grow into 5,000 agro-industrial complexes where land and non-land occupations are blended in a manner which benefits all the families living in the block. Since in our country land is individually owned, the Sixth Plan has provided funds for promoting group action in water management, post-harvest operations and for organisation of farmers' own service societies. The major aim of the Plan strategy is to promote cooperative management of certain operations like irrigation and plant protection, without affecting the individuality of farm holdings.

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*Member. Planning Commission

Though all over the country we see signs of progress in agriculture, the impact of investment in infrastructure, particularly in irrigation, has not been uniform. Uneven progress in the basic occupation of the people results in an increase in regional disparities in economic well being. The growth rate in foodgrain production in the Punjab between 1960-61 and 1978-79 was about 8 per cent as against 1.19 per cent in Orissa. Hence, considerable stress in the Plan in harnessing the vast ground water resources of eastern India. A separate Central Ground Water Development Corporation is being set up for this purpose. The quality of the services provided to farmers is very uneven. Although seed is a basic input, the seed production and distribution system is still far from satisfactory. This is regretable, since we know that excellent quality of seed can be produced in the country. We were able to introduce hybrid cotton like H4 and Varalakshmi only because our rural women are able to produce hybrid seeds of 100 per cent purity by hand emasculation and pollination. This is also a good example of the more efficient use of labour, so that their income can be enhanced. The National Seed Project is hense being streamlined and improved.

Need for Research

Modernisation requires for its success is a well-organised research system which can develop technologies capable of achieving a continuous rise in productivity without harm to the long-term production potential of soil and water. The fresh problems which crop up all the time will have to be anticipated to the extent possible and solved speedily. In the Punjab for example, soil health problems have grown during the last 10 years. Deficiencies of Phosphorous, zinc and Micro nutrients have become progressively important. Diseases like 'Karnal bunt' in wheat and downy mildew in bajra had to be faced. Last year, bacterial blight became important in the rice crop of Punjab and unless preventives measures are taken, the security of the crop will be threatened. Accidents during the use of threshers have led to several cases of amputation of hands. With increased use of purchased inputs, the money lenders' power, particularly on small farmers, becomes significant. Corrective measures for such problems have been included in the plan strategy. Well-organised strategic research both with reference to technology development and social engineering is a must for sustaining agricultural advance. Important advances may occur in plant breeding during the remaining part of this century, thanks to developments in genetic engineering. This should help to keep up the onward march in productivity improvement. On the other hand, the world may also witness changes in temperature due to an increase in atmospheric carbon dioxide. If a global warming takes place as a result of this trend, the growing season may become shorter and droughts may be more frequent. A report from the United Nations University indicates a possible adverse change in climate due to extensive clearing of forest land in China for the cultivation of annual crops. Thus one step forward may sometimes take us several steps backward. This only emphasises the need for a careful action-reaction analysis before making radical changes in the management of land and water. The various research programmes of the Indian Council of Agricultural Research are being adopted to changing needs and for undertaking anticipatory research.

Plan Strategy

The most urgent task of the modernisation process in our country is the bridging of the gap between potential and actual farm yields. This gap is quite large in most farming systems. For achieving this aim, action on two major fronts have been included in the Sixth Plan startegy. First, organisation of small farmers will be promoted both for improving farm management efficiency through concurrent attention to monetary and non-monetary inputs and for ensuring that the producer gets a high proportion of the price paid by the consumer. Secondly, a well-planned programme of diversification of employment and income generation opportunities in rural areas will be undertaken so that a part of the farm labour can get absorbed in the secondary and tertiary sectors. Some experts have calculated that even a 4 per cent per annum growth rate in crop production will still leave at least 30 per cent of the rural households below the poverty line in the year 2000. This will call for a more detailed planning of the scientific utilisation of local resources, for mixed farming involving animal husbandry and aquaculture and the preparation of value-added products. For example, in rice-based farming systems technological efforts will aim not only at increasing rice yield but also in utilising every part of the plant more efficiently. Thus, the rice straw will be enriched with molasses and urea and used for operating fodder banks for landless labour families. Rice bran oil will be extracted and de-oiled bran will be used as poultry feed. Rice husk also contains considerable amount of silicon. Attempts are in progress to extract pure silicon which can be used in photovoltaic cells to harness solar energy. If this is achieved, solar energy can be used for pumping underground water. Thus, a whole panorama of possibilities becomes open when modernisation is based on a systems approach. Modernisation of every step in the production and utilisation process is necessary for this purpose. The ultimate success of modernisation will, however, depend upon how far we are able to achieve rapid economic growth without destroying a harmonious and mutually beneficial relationship between man and his environment. This is why the Sixth Plan agricultural strategy includes steps for organising a Central Land Commission which together with the State Land Use Boards can assist farmers in using land and water based on sound principles of ecology, economics, energy conservation and employment generation.

Our entry into the space age has only underlined the urgency of protecting and conserving the natural assets on the earth. It is clear that man has to depend only upon mother earth for his food. Scientific management and use of land and water hence constitutes the core of our agricutural strategy for this decade.

(Courtsey : All India Radio)

Agro-Industries

K. V. S. Murthi and
S. Ramachandran*

A modern Oil Mill

AGRO-INDUSTRIES provide basic inputs for agriculture, like seeds, farm machinery and implements, pumpsets, fertilizers, pesticides, irrigation, electricity etc., on the one hand, and use agricultural produce as the principle raw materials for processing or preparing finished products, like food processing, animal feed, cotton textiles, sugar jute, rubber industries, etc. on the other hand. Development strategy in India has taken due note of the basic inter-relationship between agriculture and industry and had recognised that lagging agriculture may jeopardise industrialisation and the growth of the economy as a whole. The Industrial Policy Resolution 1956 emphasised that the principle of cooperation be applied wherever possible. As a result, definite programmes for agro-industries were formulated by the cooperatives and this activity gained further momentum with the advent of National Cooperative Development Corporation. Since then considerable progress has been made in agro-industries as shown in Table 1.

The introduction and popularisation of improved tools and implements has been given great stress in the interests of small farmers. Towards this end, special schemes of trials and demonstration of implements like seed-cum-fertilizer trials, organisation of prototype production-cum-design centres, dissemination of information on designs features and conventional performances of equipment under various crops/soil conditions are contemplated.

Fertilizer Industry

The first breakthrough in the production of nitrogenous fertilizers came in 1951 when a public sector fertilizer plant was set up at Sindri. The production of nitrogenous fertilizers which was about 53,000 tonnes in 1952-53 has increased to 2.23 million tonnes in 1979-80 in terms of nitrogen. In the case of phosphatic fertilizers, the production was 7400 tonnes in 1952-53. As against this the production in 1979-80 amounted to 757,000 tonnes. At the end of 1979-80 India had 28 nitrogenous and 10 complex fertilizer plants, 6 by product ammonium sulphate plants, 2

TABLE 1 : **Progress of agro-industries**

	No. of Units in Cooperative Sector				
	1963	1976	1977	1978	1979
Sugar Factories	3	106	118	130	148
Rice Mills	32	721	711	711	720
Cotton Spinning & Processing Units	34	221	226	234	353
Spinning Mills	..	54	54	56	62
Vegetable Oil Mills	2	148	148	150	217
Fruit and Vegetables Processing Units	4	33	33	28	31
Cold Storages	..	97	105	118	204
Dairy Units	..	5	14	17	20
Others	63	300	331	359	359
TOTAL	183	1685	1741	1803	2031

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*Joint Advisor and Senior Research Officer respectively of the Planning Commission.

Bananas being processed for making various preparations

triple super phosphate (TSP) plants, and 30 single super phosphate plants. Apart from these, 7 nitrogenous 2 complex fertilizers and 10 SSP plants are under implementation.

With the discovery of off-shore gas and oil fields in the western coast of India in the Arabian Sea, India has an ambitious programme to set up ten gas-based fertilizer plants, each with a capacity of 1350 tonnes per day of ammonia—the largest existing anywhere in the world. With this the total nitrogenous production in the country is expected to go upto 7.5 million tonnes of nitrogen by the end of this decade. The consumption of fertilizers is expected to go up to 8.5 million tonnes of nitrogen, 3.5 million tonnes of P_2O_5 and 2 million tonnes of K_2O by the end of the current decade. As against this, the production will be about 7.5 million tonnes of nitrogen, and 27 million tonnes of P_2O_5. The demand supply gap is proposed to be made good by imports.

In the production and distribution of fertilizers the cooperatives have made a tremendous progress. The Indian Farmers Fertiliser Cooperative (IFFCO) has a capital of Rs. 600 million and consists of 27,000 cooperative societies representing over 25 million cultivators. The IFFCO has established two fertilizer factories, one with a capacity of 400,000 tonnes of urea at Kalol and a complex fertilizer unit at Kandla with capacity of 40,000 tonnes. The third factory at Phulpur is with a capacity of 500,000 tonnes of Urea. Two additional plants, each with a capacity of 750,000 tonnes of urea based on natural gas are proposed to be set up.

At the end of 1979-80, cooperatives handled about 23.5 lakh tonnes of fertilizers through 47,000 outlets, accounting for about 43 per cent of total fertilizer distribution. It is proposed to increase the number of retail points to 60,000 by middle of the current decade.

Plant Protection

There has been a spectacular rise in the plant protection coverage from 6.2 million hectares in 1961-62 to 43 million hectares in 1971-72, and 75 million hectares in 1979-80. The target of 100 million hectares is proposed for Sixth Plan 1980-85. The consumption level increased from 10,000 tonnes of pesticides in 1961-62 to 30,000 tonnes in 1971-72 and further to 60,000 tonnes in 1979-80. The demand for pesticides in agriculture is estimated at 80,000 tonnes by 1984-85. Taking into account the pesticides used for health purposes, the demand is estimated at 100,000 tonnes by 1984-85. Presently, around 45 basic pesticidal chemicals are produced in the country. The installed capacity is around 80,000 tonnes per annum. The current level of production is around 39,000 tonnes a year. Presently the country imports 40 types of pesticides amounting to 7000 to 8000 tonnes. Now 25 large units manufacture pesticides and formulations, apart from 450 small scale ones which produce formulations.

Textile and Sugar Industries

The textile industry comprises 20.68 million spindles and 207,000 looms on the one hand and largely dispersed handlooms (3.8 million) and powerlooms (0.5 million) on the other hand. India produces around 10,000 million metres of cloth which is expected to increase to 13,300 million metres by 1984-85, Although the country has adopted a multi-fibre policy in the textile industry, a harmonious balance between the use of cotton and synthetic fibres ensuring maximisation of income and employment of cotton growers is sought to be achieved through planned production of cotton, blended and synthetic fabrics.

More than 20 million cultivators and about 250,000 workers are employed in sugar industry apart from the large number of people engeged as contract labour. There are 298 sugar factories with a capacity to produce around six million tonnes of sugar. The prosperity of large number of industries like sugar machinery manufacture, distilleries, a large number of alcohol-based organic chemical industries, cattle feed and poultry feed, confectionary, biscuit making and paper and pulp are closely linked with that of sugar industry. The entire sugar mill machinery is manufactured in the country.

Jute and Rubber

There are 74 jute mills with 44,200 looms employing 250,000 workers. The cultivation of jute provides assistance to nearly 4 million farmers.

Rubber plantation industry occupies an important position in the economy of the country. Against a world consumption ratio of natural : synthetic of 30 : 70 India's pattern is 80 : 20. while half the requirement of synthetic rubber (special purposes) is imported, the balance is produced through alcohol route which in turn is produced through fermentation of molasses obtained from sugar factories. The rubber industry is truly an agro-based industry as 90 per cent of rubber is obtained from plantation and through the by-product of sugar industry. The area under rubber plantation has increased from 69,000 hectares in 1950-51 to 236,000 hectares in 1978-79. The production and the average yield per hectare increased during the period from 16,000 tonnes to 135,000 tonnes and 284 kgs. to 710 kgs. per hectare respectively.

Other industries

The rice milling industry is dominated by traditional huller mills which yield poor quality rice as well as bran. Such bran yields inferior quality oil. It is proposed to modernise the rice milling industry through centrifugal dehusking, and separation of grain and bran. Through modernisation it is becoming possible to produce good quality rice bran fit for oil extraction. Steps have already been taken to promote large scale production of edible grade rice bran oil.

Government had set up Modren Bakeries (India) Ltd., a public sector unit to provide adequate nutrition to the consumers. This is the first bakery in the country to produce fortified and enriched bread on a large scale for supply to consumers at reasonable price.

There are programmes to develop agro industrial complexes to integrate production processing and marketing of horticultural produce. Preservation of fruits and vegetables using modern techniques is of recent origin in India. The manufacture of fruit concentrates in such areas as Jammu & Kashmir, Himachal Pradesh and sub-Himalayan terrain is proposed to be taken up. Dehydration on a commercial scale has so far been tried only in the case of peas and onions. Special attention is proposed to be given to other crops whose production is likely to increase substantially in the future.

Agro-based industries provide one of the promising avenues of employment and those in the unorganised sector (small scale industries) are based on labour intensive technologies using low energy. According to the census of small-scale units conducted by Small Industry Development Organisation (SIDO) the share of agro-based and allied industries accounted for 42.7 per cent in terms of number of units and 46.6 per cent in terms of employment with a share of 54 per cent in production during 1970. Food industry in the small scale sector constitutes an important segment in the agro-based industries and comprises all aspects of preservation, processing and marketing. With a view to ensure smooth development, selected agro-based industries have been reserved for exclusive development in the small scale sector. Some important industries among them are: bread, confectionery, oil extraction, processed spices, made up textiles including knitted wares, cycle tyres and tubes essential oils, agricultural implements like chaff cutters, animal drawn implementing, pumps, diesel engines, seed drills, etc.

Money from Grass

ENERGETIC and industrious Sri Debabrata Chakraborty 40, of the village Gandhigram under Mohonpur Block of West Tripura district, has eight acres of land. When a branch of the Small Industry Service Institute, Ministry of Industry, Government of India, started functioning in Agartala in 1973, Sri Chakraborty approached this office and sought their advice as to how to utilise his land and if some other crop would fetch more money than paddy which he had been cultivating. Officers of the Institute advised him to plant CITRONELLA in his land.

Citronella oil is mainly found in the tissues of leaves of citronella grass. It is used in perfumes, pharmaceutical creams, soaps and mosquito repellant creams. So Sri Chakraborty cultivated citronella plant which is yielding 400 litres of Citronella Oil per year, the cost of which is Rs. 40,000. He is also providing employment to five persons. After deducting all expenditure including the salary of five persons Sri Chakraborty is now earning over Rs. 1000 per month

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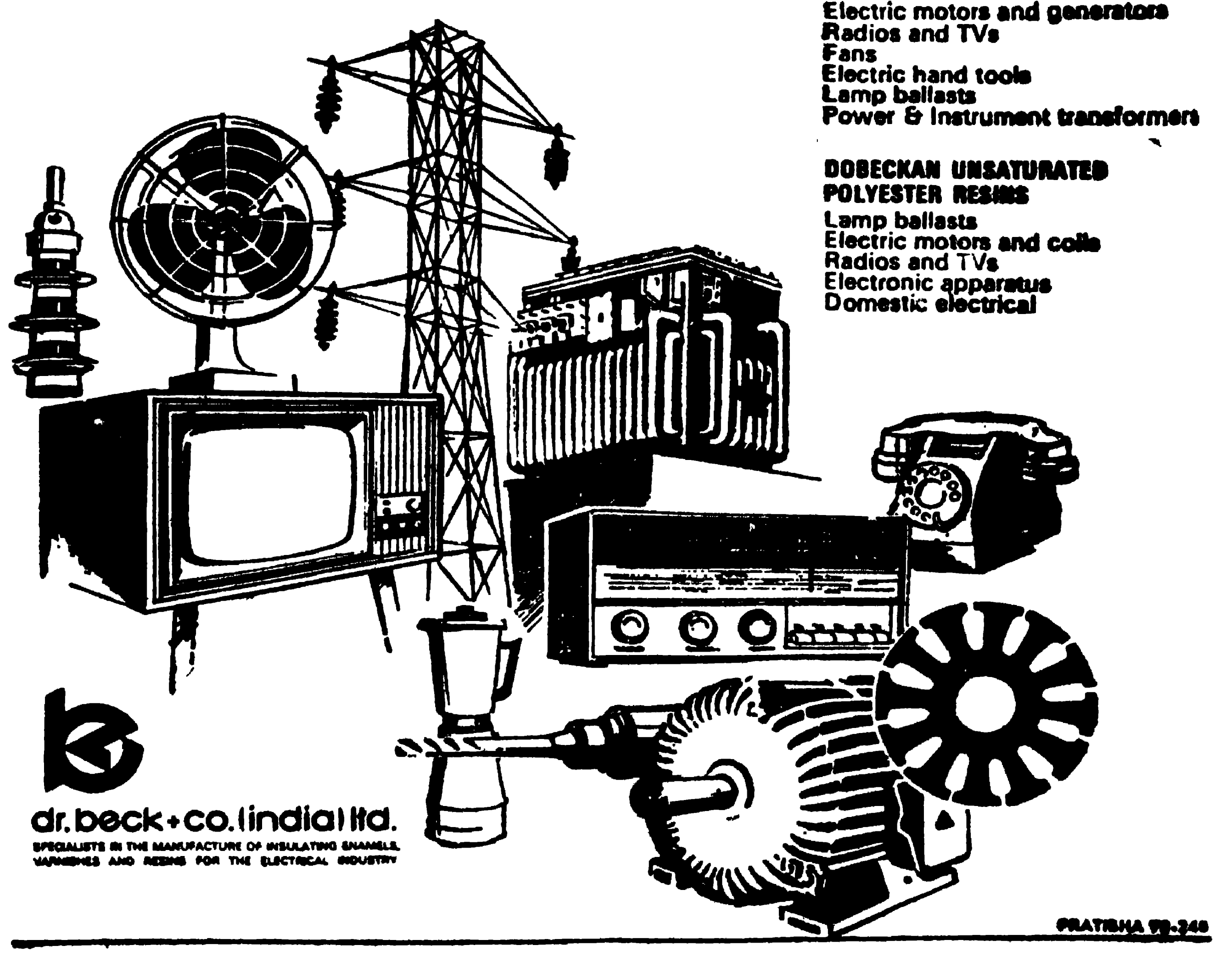

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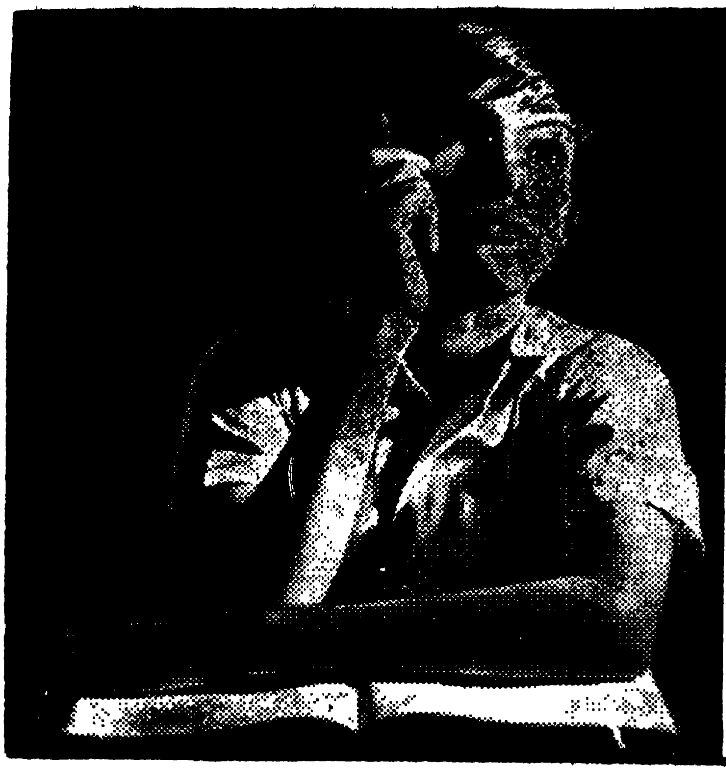

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An Evaluation

Integrated Rural Development Programme

Abhimanyu Singh*

THE Integrated Rural Development Programme launched on April 1, 1978 aims at improving the economic conditions of the weaker sections of the rural population. It is the core of the new plan strategy and in scope goes much beyond the earlier rural development programmes carried out under Community Development Programme, the Small Farmers Development Agencies, the Command Area Development Authorities and the Drought Prone Area Programme. Unlike all these previous programmes integrated rural development programme is designed to generate full employment in rural areas through intensification of development programme suited to locally available resources and manpower skills. Evolved after 30 years of experience in rural development in the country the programme is excellent in conception and is likely to yield desired result if properly executed. But its execution has been hampered by a number of limiting factors, like absence of land reforms, inadequacy of credit facilities and failure on the part of the Field Officers to motivate the rural folk to cooperate and take interests in development.

Unsatisfactory progress

Although the Integrated Rural Development Programme was launched in April, 1978 it really got started only towards the end of 1978. Against an allocation of Rs 1,069 million for 1978-79, Rs. 704.5 million was released and expenditure was Rs. 326. 7 million. Thus only 30.6 per cent of the proposed allocations were utilised. Credit mobilisation during the period was Rs. 546 million. In 1979-80 the Central Government released Rs. 312 million out of its share of Rs. 843 million up to end of December 1979. Expenditure upto September, 1979 was Rs. 146 million only. The total number of beneficiaries under the programme since its inception has been 925, 000. But the number of small and marginal farmers in the country is estimated at 47 millions. Thus only a small fraction of the total has been brought within the ambit of the programme. Huge unspent balances of subsidy fund accumulated with the State Governments. Credit mobilisation was also much below target. Several reasons can be given for this rather sluggish start. One is that administration's attention was taken up by such incidents of far greater importance as the Lok Sabha elections in January, 1980 followed by preparations for elections to State Vidhan Sabhas (State Legislatures). The country was seized by inflationary pressures and scarcity of essential goods from the third quarter of 1979, which was probably one of the worst in living memory. The collapse of the Janata Government in July, 1979 and changes in Government thereafter with consequent delay in approval of the strategies proposed in the Draft Sixth Plan also created an uncertainty regarding the programme. In the beginning of the financial year 1979-80, the Government of India took the decision that the allocation of funds under I. R. D. will be shared on a 50:50 basis between the Government of India and the State Governments. In reality this implied that the State Governments which gave low priority to rural development and were lagging behind in execution of I. R. D. Schemes could divert their share of funds to programmes of other departments on which money could be easily spent and thus failed to take advantage of the grants from the Central Government meant for this programme. In some states the implementation of rural development schemes in the past was tardy. It was feared the same might be repeated. Close monitoring by the Central Government in this vital sector was of much importance.

It is obvious that the scheme can be successful only if the funds being provided as credit by the Banks are recycled and utilised for further financing. Only if the loans are utilised productively can these be repaid promptly. As yet there is no estimate of the percentage of dues being recovered. The loans are either short-term loans or medium-term loans. The short-term loans would be due for realisation only after a year. The Reserve Bank of India has reported that overdues in respect of other agricultural advances have been as much as 50 per cent of the total agricultural advances. In several states legislation has been enacted as recommended by the Talwar Committee to assist the Banks in realisation of their dues. Non-recovery of loans would lead to the hampering of the execution of the programme and accumulation of bad debts and wasteful expenditure of money leading to inflationary pressure.

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*Commissioner, North Chotanagpur Division. Hazaribagh (Bihar)

Mobilisation of Institutional Credits

Provision of cheap credit alone may not yield the desired results. Utilisation of available funds has fallen below the allocations. In the ultimate analysis, the success of the programme would depend upon mobilisation of institutional credit by banks and cooperatives and the zeal of field officers who administer the schemes. The schemes to be successful require popular participation and enthusiasm and comprehensive block planning. This situation has yet to be created. Already there are complaints of delay in processing the applications for loans by the banks. There are even complaint of corruption in handling the applications. In view of the I. R. D. programme, the Reserve Bank of India has directed the banks to increase agricultural advances to small and marginal farmers from the present level of 37.5 per cent to 50 per cent of the total agricultural advances. Rural financing, because it caters to a large number of small and marginal farmers dispersed over a wide area, and as the amount of the loans is small, is administratively more expensive. The volume of work in banks dealing with I. R. D. schemes has greatly increased and there are complaints of shortage of staff. The programme thus leans heavily on the banking institutions. How far the banks would respond to the new situation is a big question.

Performance of I. R. D. in Bihar

In Bihar against total allocation of Rs. 122.5 million in 1978-79 and 1979-80 as subsidy amount, total expenditure upto December 1979 was Rs. 47.2 million, which was 38.5 per cent of the total allocations. The unspent balance was Rs. 75.3 million. The total number of beneficiaries under the programme during the same period was 124,049. Agricultural inputs accounted for 37.6 per cent of the expenditure. Next in importance were minor irrigation schemes which accounted for 37.6 per cent of the expenditure. Next most important scheme was Dairy Development which accounted for 27 per cent of the expenditure. But rural industries and rural artisans accounted for a meagre 35 per cent of the total expenditure. This amply demonstrates that the programme continues to be primarily an agricultural development programme and has failed so far to be broad-based as intended. The average amount of loan per family worked out at Rs. 381 only. This is surprising considering the high percentage of subsidy granted on loans. This amount of loan is too small to yield any substantial increase in income to the beneficiaries. It is apparent that the execution of the programme has lacked boldness and imagination, and the beneficiaries were taking advantage of the programme only to tide over their temporary difficulties.

The average amount of loan in the case of antyodaya programme in the State was higher, i.e. Rs. 920. Antyodaya is a part of the I. R. D. programme in the State with emphasis on the poorest of the poor class and covers all the 587 administrative blocks of the State. The I. R. D. programme is restricted to only 325 blocks of the State. Subsidy for Antyodaya schemes is available in the 325 I. R. D. blocks from the same fund. In the remaining blocks there is no provision for subsidy for Antyodaya schemes. To maintain uniformity proposals for provision of subsidy for Antyodaya schemes in the remaining blocks were under consideration of the State Government. The total disbursement of loans under Antyodaya programme was Rs. 52.4 million upto 15-11-79, whereas the total number of beneficiaries was 56,928.

An important lacuna in the progress reports prepared by the State Government for I. R. D. and Antyodaya programmes is that there are no details of number of beneficiaries belonging to the scheduled castes, scheduled tribes and agricultural labourers and the amount of subsidy granted to these groups. The I. R. D. programme has laid great stress on the uplift of these weakest classes and the Government of India has emphasised collection of data about these groups. Even in the progress reports compiled by the Government of India details regarding these groups were not supplied. By overlooking these details there is the danger that the interests of these underprivileged classes may not get the attention required under the programme. The districts and blocks should be asked not to ignore these details while compiling their progress reports.

Some Gaps in the Programme

The Integrated Rural Development Programme assumes that people will readily accept the credit facilities and use them in applying the inputs for agricultural development or in other schemes. It assumes that there will be no dearth of market for produce of different schemes including goods manufactured by rural artisans through use of intermediate technology and that people will readily come forward to receive training in these appropriate technologies. Whether the inputs themselves would be available in time on demand is an uncertain factor. In the case of scheme for purchase of milch animals, e.g., lack of availability of better breed cattle, sometimes encouraged exchange of cattle between members of the same family or close acquiantances, with the amount of the subsidy being used for some other purpose.

The small and marginal farmers with their limited requirements for promoting agricultural development. are convinced about their profitability. Credit is one of the requirements for promoting agricultural development. Increased availability of credit may have little effect on production if other measures militate against the profitable use of credit. Farmers are afraid of incurring an unproductive debt. To a large extent this reluctance is due to the scarcity of inputs and difficulty in procuring them. The schemes should be profitable and give reasonable return on the investments, including labour in the different schemes if it is to induce the peasants to accept the programme. It is said that due to various price controls and restrictions, prices of agricultural commodities in India are depressed and unremunerative and do not provide sufficient incentive for application of modern inputs. If this is so, the remedy lies in removing these artificial restrictions and allowing the agriculturalists to make more profit.

Land Reforms

Another important factor militating against successful execution of the IRD programmes is the absence of land reforms. As majority of the cultivators are either small or marginal cultivators or landless agricultural labourers their status has much to do with incentive for cultivation. For an energetic and enterprising peasantry can make all the difference between static and progressive agriculture. But leasing of land still continues to be widely practised. Despite land reforms legislations by nearly all State Governments conferring ownership rights on tenants oral leasing continues to be practised. Unless strictly enforced the legislations are not likely to help eliminate this practice which has for centuries been the bane of Indian agriculture. The IRD programme will not make any impact till this malady is eradicated.

The strategy spelled out by the Integrated Rural Development Programme is an appropriate one considering the prevailing conditions in the country. Considering the fact that 5.5 million people are being added every year to the labour force and swelling the ranks of the unemployed, and the fact that over 40 per cent of the rural population is below the poverty line, the emphasis in the I.R.D. Programe on creation of income and employment for the benefit of the weakest section of the society is but natural. Any new plan for 1980-85 proposed by the present government cannot afford to ignore these two basic problems. One of the principal objectives of Mrs. Gandhi's government also is to provide employment to at least one adult member of each family. The approach of I.R.D. programme is to create non-farm employment opportunities to supplement the farmers' income. Vast majority of the farmers are small and marginal farmers with holdings less than two hectares, and the small size of their holdings limits their capability of raising their income from agriculture alone.

The core of the programme is creation of additional income and employment with emphasis on the weakest section of the population. Attention should not be diverted from this core by stressing other issues of minor importance. We find the programme being extended to include other miscellaneous items. Provisions have been lately made to meet establishment and infrastructure development expenses also from the funds of the programme. Such a trend would only dilute the effectiveness of the programme.

Expansion of village and cottage industries on the scale that is envisaged in the programme cannot take place unless it is based on sound technology and is capable of competing with modern industry both in regard to quality and price. The content to the training programme for rural artisans is therefore of much practical significance. It needs to be backed up by sufficient research and investigation in different trades and crafts. Otherwise there is the risk of huge expenditure on training programmes becoming merely unemployment doles.

Banks, People and Poverty

R. K. Kaul*

THE rural sector is still traditionally unaccustomed to modern ways of business. Large majority of the rural poor are illiterate and almost all of them, though in dire need of employment, dare not venture into new lines of activities because of their inherent inability to take risks. Given this setting, the banks have not only to associate themselves with the programme authorities in all phases of implementation but have also to innovate and amend and adjust their policies, procedures and practices accordingly.

We have been, for the past decade, emphasising the need for the banks to shift their lending from credit-worthiness of the borrower to the credit-worthiness of the purpose. While the latter has started receiving substantial attention from our banks, the fact remains that their concern for apriori security of funds has not shown any significant decline.

The bankers should look at their borrowers not merely as an individual but as a member of a household and consider the package of assistance to the household that can be provided to enable it come up above the poverty line.

The bankers have in the past tried to reduce the size of individual loans—sometimes to amounts even less than the minimum required. Such a lending has proved to be a waste. It is, therefore, of critical importance that the loanee receives the quantum of credit which is essential for securing the assets planned for.

In the interest of the success of the ventures of the borrowers and in their own interest, it is necessary that bankers continue to take active interest in the working of the ventures that they have helped create and provide counsel and guidance to the borrowers on a continuing basis.

Given the low consumption standards of the poorest, the bankers must draw up their schemes and scales of credit support and repayment schedules in such a manner that there is provision for the consumption needs of the household during the gestation period of the ventures and of the surplus income generated, sufficient portion is allowed to be retained by the borrowers for better consumption.

There will have to be a conscious effort to reorient the staff towards the task of helping the rural poor. The increasingly important role that the banks are expected to play in eradication of poverty in rural areas will inevitably involve a large burden of subsidisation on them. They, however, have sizeable portfolios of other advances to major and medium industry and organised trade which have the capacity to bear a higher interest burden and the banks will have to endeavour to achieve a cross-subsidisation in such a manner as to maintain their commercial viability while discharging their socio-economic responsibilities. Greater attention to the economy aspect also will have to be given in this context. The banks will have to ensure that the borrowers are approached regularly and in time for repayment of dues. For collection of deposits the banks have long been using agents as collectors. There is no reason why the same technique cannot be adopted for recovery of small loans. What is necessary on your part is a realisation that for a poor man it is easy to part with a rupee or two a day particularly where his incomes are of daily or contract work nature—rather than one hundred rupees at the end of the month or quarter. The absence of foresight and planning habit on the part of the type of clientele you are now being asked to serve is a factor that you must constantly reckon with in devising your loan scheme. □

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*Additional Secretary, Department of Banking, Ministry of Finance, Govt. of India. Excerpts from his address to Banker Trainers Forum at the Institute of Cooperative Management Research and Training, Lucknow, on March 27, 1981.

Visakhapatnam Steel

Sivaprasad Samaddar*

INCREASE in the steel output, during the last 25 years has been quite substantial. However, our annual steel consumption still remains around 15 kg. per capita while it is around 600 kg. in industrially advanced countries. So to achieve and sustain a rapid increase in steel consumption Government has been considering the feasibility of setting up port-based steel plants as a part of the overall development programme.

With this background the Government decided to set up an integrated steel plant of 3.4 million tonnes of liquid steel capacity at Visakhapatnam in Andhra Pradesh. The Government of USSR offered initially a credit of Roubles 250 million. In order to bridge the gap between demand and availability of steel, it was decided to commision facilities to produce about one million tonnes of saleable steel within four years from the start, while the full plan would be implemented in a time span of six years.

Incorporating latest trends in steel plants technology the project is being set up at Balacheruvu village near Visakhapatnam port. It will be the first integrated steel plant at a coastal location in the country.

Raw Materials

The Visakhapatnam Steel Plant (VSP) will receive most of the major raw materials from Andhra Pradesh and Madhya Pradesh. Only coking coal will be procured from outside; 20 per cent by import and the rest from Bengal—Bihar coal belt. The annual requirement of major raw materials along with their sources has been indicated in Table I.

The water requirement of 73 million gallons per day for the VSP will be met by the proposed Yeleru scheme of Andhra Pradesh Government. There will be a balancing reservoir at Kanithi in the steel township area to store about 40 days' requirement of water.

Bulk of the electric power required for running the plant will be met from the Andhra Pradesh State Electricity Board Grid. There will also be three captive power generators of 60 MW each inside the steel plant so as to cater to its essential load for the safety of equipment and continuity where required. The maximum requirement of the plant is 340 MW, but as is well known the normal load is substantially lower. The peak load is for very short spells when heavy units like rolling mills start operation. A steel plant has necessarily to have the back-up from the State grid.

Table I

Raw Material Linkages

Raw Material	Source/State	Distance km.	Annual requirement in million tonnes
Iron ore lumps	Bailadila (MP)	471	1.762
Iron ore fines	Bailadila (MP)	471	3.394
Limestone Blast Furnace grade	Jaggayyapeta (AP)	455	0.358
Limestone steel Melting Shop grade.	Badanpur (MP)	1120	0.854
Dolomite Blast Furnaace grade	Machkot-Tiria (MP)	325	0.605
Dolomite Steel Melting Shop grade	Khammam (AP)	495	0.221
Manganese ore	Barajamda (Orissa)	880	0.187
	Chipurupalli (AP)	100	
Coking Coal			
Prime	Bengal	990	1.411
Medium	Bihar		1.815
Steam Coal.	Singareni (AP)	490	0.935
Imported coal	through Visakhapatnam port	30	0.807

Main Plant Facilities

The technology and equipment selected for the major production units—coke ovens, sinter plant, blast furnaces, steel melt shops and rolling mills—are based on proven modern technologies in the steel world. While selecting the process and equipment, the quality of raw materials available and local conditions have been kept in view.

For the first time in the country several new technologies are proposed to be adopted at VSP. They include selective preparation of coal for coke making, installation of seven metre tall coke oven batteries and dry quenching of coke at the coke ovens, full preparation of burden materials including sizing and blending of ore within the steel plant, on ground blending of base mix for the sinter plant, use of 80 per cent sinter in blast furnace burden installation of 3,200 cubic metre blast furnaces (1.6 times bigger than Bokaro's 2,000 cum blast furnaces), granulation of 100 per cent liquid slag at the blast furnace cast house, utilisation of the top pressure blast furnace gas for power generation and use of bell less top at blast furnace with conveyor charging. Visakhapatnam will be the first steel plant in the country to adopt 100 per cent continuous casting of liquid steel.

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*Secretary Ministry of Steel and Mines, Govt. of India

The rolling mill complex adopted for this plant also incorporates the world's latest technological developments in the field of rolling shaped long products. Rolling of wire rods using 45 finishing blocks will be done for the first time in the country. Production of hot rolled re-inforcement bars by heat treatment process will be adopted as per the latest trends in world. A universal beam rolling mill is being put up in the country for the first time. The production of universal beams will be a boon to fabricators as it will save them a lot of steel. The mills selected for the plant incorporate all quality control measures to produce products of high international standard.

Table 2
Major Production Facilities

Production Deptt.	Major Facilities
Coke Ovens	3 Batteries x 67 ovens each oven height—7m. useful volume—41.6 cu.m.
Sinter Plant	2x 312 sq. m. sinter machines
Blast furnaces	2x 3,200 cu.m. blast furaces
Steel melting shop No. 1.	2 x 130 t. converters (one operating) 4 x 4 strands bloom casting machines
Steel melting shop No. 2	3 x 130 t. converters (two operating) 6x4 stands bloom casting machines
Light and Medium merchant mill	2 x 200 ton/hour reheating furnaces 33 stand rolling mill with single strand break down group, one 200 t/hr two strand roller hearth funance and 2 strand continuous mill.
Wire rod mill	1 x 200 t/hr reheating furnace and 55 4 strand continuous mill.
Medium merchant and structural mill	1 x 250 t/hr reheating furnace and 20 stand single strand continuous mill.
Universal beam mill.	1 x 300 t/hr reheating furnace and 13 stand semi-continuous

Other Important Features

At VSP, peripheral unloading of raw materials has been envisaged, for the first time in the country. Complete in-plant movement of materials has been rationalised and mechanised. Materials will be transported to the extent of 71 per cent by conveyors while the share of rail and road transportation will be 22 and seven per cent respectively.

Waste energy utilisation as well as environmental pollution control have been given adequate consideration in designing the plant facilities. The re-cycling of all metallurgical wastes has also been envisaged not only to avoid wastage but also to control pollution. In order to improve the working conditions of the plant personnel to combat pollution extensive provisions have been made through dust and fume extraction system, electrostatic precipitators etc.

Automation and controls have been given special attention for control of production and product quality Various safety and fire protection systems have been adopted for the equipment and personnel.

The VSP will set up its own township adjacent to the plant to accommodate a sizeable number of its 20,000 prospective employees. In all, it is estimated that around 10,000 residential units with necessary supporting facilities will be built for the employees. Presently work is going on urgently for constructing 350 houses and allied amenity buildings, bulk services etc.

Product—Mix

The VSP is being set up to meet the projected shortfall in the demand of long shaped products. Continuous casting facilities and mills have accordingly been selected keeping in view the market demand when the plant will go into operation. Besides rolled products, the plant will also produce 215,000 tonnes per year of pig iron to supplement pig iron supplies to foundries. The annual production of rolled products is given in Table-3.

Table 3
Rolled Products

Description	Tonnes/annum
Light & Medium Merchant Mill	883,000
Medium Merchant and Structural Mill	700,000
Wire Rod Mill	600,000
Universal Beam Mill	800,000
Total	2,983,000

The VSP will also make 1,440,000 tonnes of granulated slag which will be used for cement manufacture. By-products from the coke ovens plant such as ammonium sulphate, benzol products and tar distillation products will meet their demand for fertilizer and chemical industries.

Plant construction

Building an integrated steel plant in four to six years which is being attempted here is no doubt a huge task. The annual volume of work in the case of VSP will be much higher than in any of the earlier projects. The timely completion of construction calls for a much faster pace. The major volumes of construction is given in table 4 below :

Table 4
Major Volumes of Construction

Item of work	Unit	Approximate quantity
Earth work in site levelling	Cu. M.	21,530,000
Excavation for foundation	cu. m.	13,095,800
Piling work	cu. m.	49,000
Concreting of all grades	cu. m.	2,547,000
Reinforcement work	tonnes	170,000
Masonry work	cu. m.	305,000
Structural Steel work	tonnes	429,600
Roof & side sheeting	sq. m.	2,042,000
Road work	sq. m.	1,217,600
Railway track	km	208
Sewerage and drainage piping	m	59,000
Equipment Erection	tonnes	363,400
Refractories work	tonnes	195,000
Technological piping	tonnes	76,900

An appraisal of the volume of work involved in the construction of VSP at 3.4 million tonnes stage reveals that, while the total quantities compare favourably with those involved in the construction of Bokaro Steel Plant upto the 4 million tonne stage, the construction of VSP has to be completed in six years while Bokaro had a time span of about 15 years.

The average monthly rate at which the various quantities of construction work have to be executed at VSP has also been higher than the peaks achieved in any one month in Bokaro or Bhilai Steel Plant. VSP has, therefore, asked for certain dispensations for streamlining and simplifying the procedure on the pattern of Kudremukh Iron Ore Company and Salem Steel Plant in regard to the finalisation of contracts for construction works, placing of orders for equipment etc. The total requirement of construction materials is given in Table 5.

Cost, time and space

The total project cost as estimated on a base date of the first quarter of 1980 works out to be Rs. 2,907 crores. This cost estimate does not include provision towards interest during construction or for the escalation of costs. The investment cost per tonne of liquid steel excluding the cost of off site facilities, township, ore mines and quarries comes to Rs. 8,200. The total systems cost would be about Rs. 446 crores.

In accordance with the present construction schedule and taking October, 1981 as the zero date, the plant will be built to a capacity of 1.2 million tonnes of liquid steel per annum by October, 1985 and to the full capacity of 3.4 million tonnes by October, 1987.

Sufficient space has been provided to enable the plant to be expanded in the future up to an annual capacity of 10 million tonnes by adding appropriate facilities.

Table 5

Requirements of Construction Materials

Material	Unit	Approximate quantity
Coarse aggregates	Cu. m	2,800,000
Fine aggregates	cu. m	1,600,000
Stone boulders	cu. m	950,000
Road & Railway ballast	cu. m	500,000
Bricks	no	175,000,000
Cement	tonnes	1,400,000
Reinforcing steel	tonnes	190,000
Structural steel	tonnes	500,000
C.G.S. sheets	tonnes	25,000
A. C. sheets	sq. m.	750,000
Railway track rails	tonnes	23,000
Drainage pipes (reinforced concrete) of various diameters	m	21,500
Sewerage pipes (stoneware) of various diameters	m	42,300
M. S. and C. I. pipes of various diameters	tonnes	80,000

The steel plant at Visakhapatnam will not only meet the shortage of steel and reduce imports but also help in the utilisation of indigenous resources, the development of ancillary industries and the economic development of the region. It will also lead to the increased utilisation of raw materials available in the country and set in motion an entire chain of development in the interest of the nation's economy. ☐

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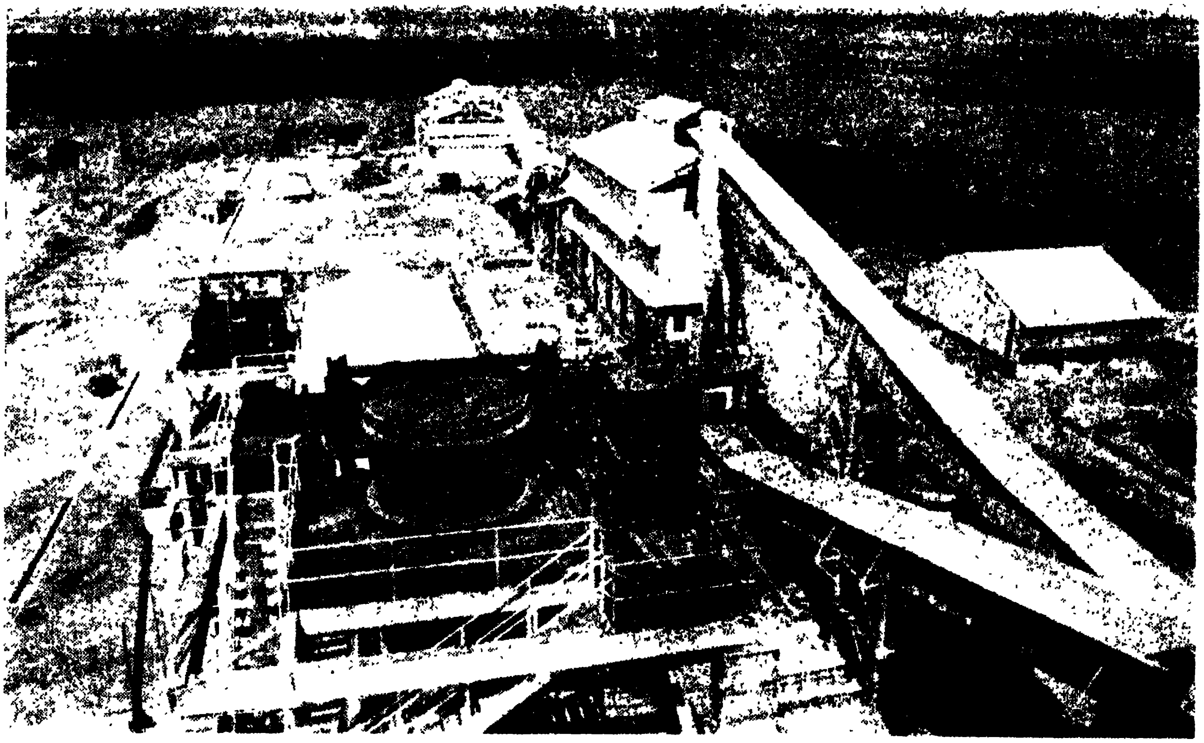

A view of the Sponge Iron India Ltd., Paloncha

High Quality Sponge Iron at Low Costs

V. Sripati Rao*

AT Paloncha, a small township near Kothagudem Coal Fields in Andhra Pradesh, a new technique to manufacture quality sponge iron through electric arc furnace method using non-cooking coal or inferior coal as feed stock, has been developed.

All over the world, usually high grade coal, otherwise known as industrial coal and high grade iron ore are used as feed stock which escalates the production costs. But at Paloncha, a very inferior quality iron ore is heated up with equally inferior quality coal, reducing the costs to the absolute minimum in production of quality sponge iron. Elsewhere in the world, such attempts are only in the experimental stage. Credit goes to the untiring efforts of the dedicated engineers, scientists, technologists and others, working at Sponge Iron India Limited (SIIL), Paloncha.

Thrilled at the success of Indian experts the United Nations Industrial Development Organisation (UNIDO) and the UNDP have come forward, in a big way, to assist and help the Indian programme and to extend the benefits of this scientific achievement to other countries including the highly developed ones like the USA, Germany, France, Japan and so on.

The UNDP, in one of its reports stated, that the plant installed at Sponge Iron India Ltd., Paloncha, is the only one of its kind in the entire world, where the complete range of facilities are available for carrying out studies on iron ore and coal used in the manufacture of sponge iron.

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*Our Senior Correspondent and Editor Yojana (Telugu), Hyderabad.

Not content with the success achieved in production of sponge iron with non-coking coal available in the nearby coal fields, experiments are now in full swing in using non-coking coal and low grade iron ore available in different parts of India and the world. In fact, the advanced level of R&D facilities available at this plant make it the most modern centre of sponge iron production technology. It is for this reason the UNDP|UNIDO have named it as the most prestigious and largest project of its kind implemented anywhere in the world. Today the SIIL is registered with the UNIDO as consultant in the field of direct reduction process in the manufacture of sponge iron, a rare distinction conferred on any Indian company/firm/agency. Shortly the SIIL, Palocha will become a regional centre for direct reduction studies in steel production for countries of Asia and Africa, who can benefit directly from the experiments conducted here.

Sponge Iron India Ltd., which was sanctioned by the Government of India in October, 1977 as a high priority national project, kept up a tight schedule and completed most of its work within a period of 26 months. Equipment needed by the SIIL was procured in India. Several industrial units, belonging to private and public sectors contributed in a big way in the establishment of this demonstration plant at Paloncha. Critical equipment for the plant was supplied by Lurgichemie (LPRGI) of West Germany. Of course the SIIL undertook the responsibility for detailed supervision and for coordinating Indian equipment supplies. It was a challenge to Indian industry to design manufacture and supply special type machinery and equipment required by the SIIL in the shortest possible time to the rigid specifications. On 31 December 1980 the Vice-President Shri M. Hidayatulla declared open the world's first pilot plant to produce sponge iron by the ancient method known in India at Kothagudem in Andhra Pradesh. No industrial concern of such magnitude either in India or elsewhere was completed and pilot production commenced with more than hundred per cent capacity rate.

The pilot demonstration plant designed to produce 1000 tonnes per day achieved criticality within 10 days and thereafter its production increased to 120 per cent over its rated capacity. Today its average production runs to 110 per cent of its designed capacity. The cost of the total project comes to nearly Rs. 165 million and the UNDP has agreed to contribute nearly 4.69 million US dollars. The progress achieved at SIIL is watched with interest all over the world and particularly by the steel producing developing countries of the world, who are facing problems in iron and steel production.

In India we have 20,000 million tonnes of iron ore resources but then the reserves of prime metallurgical coking coal are limited to a mere 5,000 million tonnes. In addition the natural gas reserves available with us have so far been committed to other critical industrial needs, and according to present indications it seems unlikely that large quantities of natural gas will be made available for sponge iron. As such, the process developed at SIIL using non-coking coal as alternative is of greater significance to this country and others at large.

The importance of finding methods of steel production using non-coking coal (as developed at SIIL) is quite evident from the fact that to produce a mere one tonne of steel will increase manifold in the coming years. Therefore, the new technique evolved at SIIL which emphasizes usage of lower grade coking coal and inferior quality iron ore, at once solves the problems. It is for this reason the attention of steel world is now focussed on Sponge Iron India Ltd., Paloncha, Kothagudem, India. ☐

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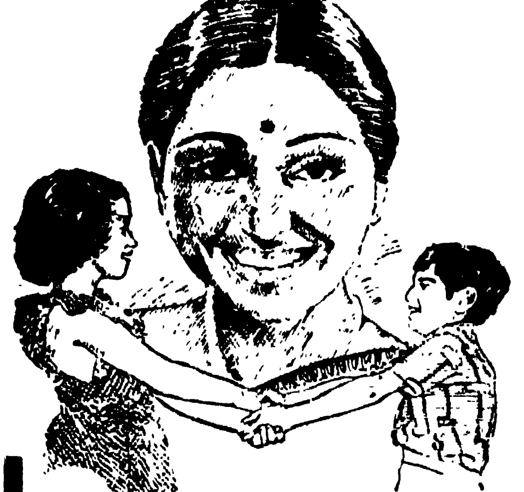

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INDIA'S first Plan envisaged a doubling of per capita income in 25 years. Actual performance however measured only half the targeted achievement, partly because unbridled population growth negated the fruits of development. We are today around 686 million, of whom nearly one half live in abject poverty. This gravely threatens the country's stability and renders population control a national imperative.

The recent slackening in family planning efforts has reportedly resulted in an upward movement in fertility trends which were otherwise happily, if slowly, declining. The incremental burden of unwanted numbers inevitably falls on the poor and disadvantaged, especially women and children. This need not be so, as family planning brings the choice and means to every couple to avoid an involuntary birth and the devaluation of child female life. However, only little over a fifth of the 113 million eligible couples is currently effectively protected by any method of family planning.

High fertility is both the consequence and the cause of destitution and is best reduced by a package of social and economic development and well-structured health measures. Unfortunately, the thrust towards equity and basic needs has been halting although the family welfare programme is central to national development and human rights.

Kerala and Goa's experience demonstrates that social development is indeed among the best contraceptives The new Sixth Plan must therefore combine pupulation control and family welfare with a development strategy directed towards the poor. The goals of overall development and fertility control are not divergent and can and must be linked by a social infrastructure that ensures an acceptable and rising quality of life to every Indian.

As concerned citizens we urge that, like national security, the small family norm and family welfare based on the satisfaction of basic human needs must be part of a minimal national consensus, above partisan politics. Such a framework will enable Government and people cooperatively to formulate and implement a humane, democratic and voluntary yet vigorous programme of family planning with the political support requisite for ensuring a decisive decline in fertility within the present decade.

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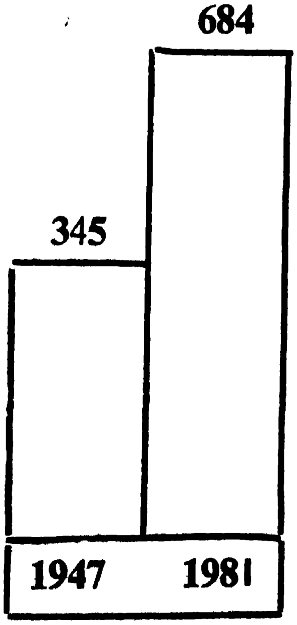
POPULATION
IN MILLIONS



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State of the World at Beginning of Third Development Decade

Dr Debesh Bhattacharya*

ACCORDING to the UN General Assembly resolution, the objective of the first Development Decade (1960s) was to "accelerate progress towards self-sustaining growth of the economy of the individual nations and their social advancement so as to obtain in each under-developed country a substantial increase in the rate of growth, with each country setting its own target, taking as the objective a minimum rate of growth of aggregate national income of 5 per cent at the end of the Decade.............."

Although the General Assembly in its resolution did refer specifically to social advancement, it laid down a precise quantitative target only for the increase in aggregate income. Social advancement is not synonymous with increasing aggregate income. It ought to cover income distribution, employment opportunities, the adaptability of the society to innovation and its self-reliance.

The poorest 30 per cent of humanity have 3 per cent of world income. The average North directly and indirectly consumes five times as much grain, land, fertiliser, water as any in India, Nigeria and Colombia. As Todaro correctly observes in his book 'Economic Development in the Third World' ".....consumption of energy fuels (fossil-oil and coal, nuclear and hydroelectric) by the average American in 1976 was 25 times the average Brazilian, 60 times the average Indian, 191 times the average Nigerian, and 351 times the average Ethiopian consumption level!" The World Bank should be more concerned with the unnecessary and costly wastage of many scarce and non-renewable resources by the developed countries than its doctrine of so-called population explosion in the Third World.

The ultimate objective of development must be to bring about sustained improvement in the well-being of the poor by reducing their poverty and unemployment levels. Moreover, if undue privileges, extremes of wealth and social injustices persist then development fails in its essential purpose.

The problems of under-development can be solved only by further extension of government responsibilities for management of national and international economic relations.

Human Misery

The extent of human suffering under the existing order was reported by the then World Bank Chief McNamara : "..... 1.2 thousand million do not have access to safe drinking water or to a public health facility. Seven hundred million are seriously malnourished. Five hundred and fifty million are unable to read or write. Two hundred and fifty million living in urban areas do not have adequate shelter."

The greatest tragedy of two development decades is that the levels of absolute poverty, unemployment and underemployment in the Third World remains unacceptably high. Table I on page 27 shows the problem of global poverty estimated on the basis of the standard of living of an unemployed person in France and the United Kingdom.

Socialist developing countries have been excluded in Table I. Inclusion of these countries would no doubt increase the number of the poor. Peter Richard's comparison of 1963 and 1972 shows that the absolute number of people below each poverty line has increased during the period. Both International Food Policy Research Institute and Reulinger and Selowsky Studies (Malnutrition and Poverty : Magnitude and Policy Options) also conclude that the absolute number of persons with inadequate food intake has almost certainly increased since 1960. The later study, using a method that takes intracountry distribution explicitly into account, has estimated that from 0.9 to 1.1 million calorie intake in 1965, and that this figure was likely people received less than the recommended daily calorie intake in 1965, and that this figure was likely to have increased to 1.4 billion by 1975.

---

*Senior Lecturer in Economics, University of Sydney, Australia

TABLE 1

The poor, the seriously poor, the destitute and total population by region. 1972 (Population and Percentage Distribution)

	Percentages				Population (millions)		
	Poor	Poor	Destitutes	Poor	Poor	Destitutes	Total
Asia	88	71	42	1048	853	499	1196
Africa	86	69	39	296	239	134	345
Latin America & Caribbean	65	43	27	274	118	73	274

According to the International Labour Organisation, there are now 450 people (40 per cent of the Labour Force) either employed or underemployed in the developing countries. Table 2 shows the percentage rates of unemployment and underemployment in developing countries in 1975.

Rates for unemployment in Table 2 do not appear excessively high, especially for the total economy. However, in the absence of unemployment compensation, the poor cannot afford to be openly unemployed. Therefore in most poor countries, the problem expresses itself more as underemployment—persons unable to earn a living for themselves and their families either by working too few hours or in low productivity jobs—than as open unemployment.

Hence while unemployment rates in Table 2 are always higher in urban areas than for the entire economy, underemployment rates are invariably less in urban centres than for the entire country.

Economic development theories that held sway during the fifties and sixties have lost their credibility in the light of mounting poverty and underemployment in the Third World. The view that prevailed then was that the "trickle-down" mechanism would solve the poverty, unemployment and income distribution problems if only growth were fast enough. The average per capita income of the developing countries grew at over 3 per cent during the last two decades and never has so many Countries so much economic growth in history. One can say that the mythical "trickle-down" effect has not taken place in most countries. Highly concentrated and un-equal growth has been observed and there has been no tendency for growth to spread in many developing countries. The share of income received by the poorest 20 per cent in developing countries has declined from 4.5 to 4.1 in most recent estimates.

The historical evidence suggests that it simply may not be possible to grow first and then to solve the problems of poverty, underemployment and unequal distribution, because the structure and pattern of growth may largely fix the pattern of employment and distribution levels. If greater equality of incomes is to be achieved, redistribution of resources both within and between countries would be tackled as a first priority by land reform, mass education and large transfer of resources from the rich to the poor.

Widening Gap

Most non-oil-exporting developing countries (NOEDC) have not yet been able to achieve self-reliance. Self-reliance means that any country's requirements will be met from within to the maximum possible. Imports to that country should be limited to what it cannot produce within its frontiers, or finds it uneconomic to do so in terms of comparative advantage and what it is able to pay for from its export earnings. Thus, self-reliance and a persistence balance of payments gap cannot go together. Table 3 shows the failure of the NOEDC to achieve self-reliance. It is also evident that the Oil exporting developing countries are no longer suffering from any deficits from their international economic relationship.

The outstanding debt of the developing countries rose almost sixfold between the end of 1970 and the end of 1979 reaching $ 376 billion from $ 64 billion. Hence it is a particular problem of economic self-reliance and independence for many NOEDC.

The higher cost of oil imports has constituted a major component of the deterioration in the current account deficits of the NOEDC since 1973. Increased prices of manufactured goods from developed countries however has also made a significant contribution to the higher import bill and outstanding debt. Resolution 2626—XXV for the Second UN Development Decade had stipulated that particular attention should be paid "to secure stable, remunerative and equitable prices with a view to increasing foreign exchange earnings from exports of primary products from the developing countries".

Throughout much of the Third World, in fact, export earnings from primary products are violently fluctuated in the last decade and have fallen sharply in the past year—with prices of coffee, cocoa, sugar, rubber, lead, tin and jute all experiencing declines.

TABLE 2

Unemployment and Under employment, Key Regions, 1975 (Percentages)

	Rural	Urban	Total	Rural	Urban	Total
Asia	3.2	6.9	3.9	39.5	23.2	36.4
Africa	6.2	10.8	7.1	41.0	25.1	37.9
Latin America	2.8	6.5	5.1	39.4	22.8	28.9

TABLE 3

Payments balance on Current Account 1973-80 (In billions of US dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
Industrial Countries	19.3	—11.6	17.9	—0.5	—4.1	33.4	—9.8	—50
OPEC	6.6	67.8	35.0	40.0	31.9	5.0	68.4	115
NOLDC	—11.5	—36.9	—45.9	—32 9	—28.6	—35.8	—52.9	—70

Balasa has correctly pointed out in an article that the existing tariff structure discriminates against higher levels of processing and production, thus encouraging the developing countries to produce and export only primary products.

Protection has remained one of the major obstacles to expansion and diversification of exports from developing countries. According to UNCTAD, tariffs facing developing countries in developed markets are, on average, about 50 per cent higher than those levied on imports from other developed countries. Kathryn Morton has reported that in 1969 developed countries imposed non-tariff measures on 28 per cent of all imports from developing countries, as compared with per cent on imports from other developed countries ('A Hand Worth Playing').

The International Development Strategy for the Second UN Development Decade devoted considerable attention to the issue of tariffs and non-tariffs barriers. "Developed countries will not, ordinarily, raise existing tariff or non-tariff barriers or any discriminatory measures, where such action has the effect of rendering less favourable the conditions of access to the markets of manufactured and semi-manufactured products of export interest to developing countries."

Since 1976 there has been a marked increase in protectionism in the developed countries in the forms of cartel-like sharing agreements, 'voluntary' export restraints, countervailing duties, government aid to domestic industries to sustain levels of production above those warranted by demand and a whole spectrum of non-tariff measures. It seems, in fact, that as soon as a product of developing countries becomes competitive on world markets, it faces the hostility of developed countries. Thus, paradoxically instead of receiving the preferential treatment which has been stipulated in various resolutions of the Second Development Decade, the developing countries are continuously receiving especially discriminatory treatment.

The Second Development Decade also suggested that there should be an increase in foreign aid. "Each economically advanced country will progressively increase its official development assistance to the developing countries, and will exert its best efforts to reach a minimum net amount of 0.7 per cent of its gross national product market prices by the middle of the Decade". (Resolution 2626 XXV 24 October, 1970).

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TABLE 4

Selected Indicators of Development

	Low-income Countries			Middle Income Countries			Developing Countries			Industrialised Countries			Capital Surplus Oil Countries			Centrally Planned Countries		
														1980			1980	
1. Population (Millions)		1348			916							673			64			1,386
2. Population Average annual percentage growth	1950-60	1960-70	1970-80	1950-60	1960-70	1970-80				1950-60	1960-70	1970-80	1960	1970	MRE	1950-60	1960-70	1970-80
	1.9	2.5	2.3	2.4	2.5	2.5		2.2	2.4	1.2	1.0	0.7	2.4	2.6	2.9	1.9	1.7	1.3
3. GNP per person (1980 dollars US)	1950	1960	1980	1950	1960	1980				1950	1960	1980						
	164	174	245	625	802	1,521				3,841	5,197	9.684						
4. Average annual Growth of GNP (Per person percent)	1950-60	1960-70	1970-80	1950-60	1960 70	1960-70	1950-60	1960-70	1970-77	1950-60	1960-70	1970-80	1960-80	1950-60	1960-70	1970-77	1960-70	1970-77
	0.6	1.6	0.9	2.5	3.6	3.11	2.7	3.4	3.2	3.1	4.0	2.4	3.2	2.6	5.1	4.3	5.8	5.6
5. Average annual rate of inflation (per cent)	1960-70	1970-78		1960-70	1970-78					1960-70	1970-78		1960-70	1970-78				
	3.0	10.6		3.1	13.1					4.2	9.4		1.2	22.2				
6. Agriculture Average annual growth rate (percent)	1960-70	1970-78		1960-70	1970-78					1960-70	1970-78		1960-70	1970-78				
	2.5	2.0		3.4	3.1					1.2	1.0			5.2				
7. Industry Average annual growth rate (percent)	1960-70	1970-78		1960-70	1970-78					1960-70	1970-78			1970-78				
	6.1	4.5		7.8	7.1					6.1	3.4			4.0				
8. Manufacturing Average annual growth rate (percent)	1960-70	1970-78		1960-70	1970-78					1960-70	1970-78			1970-78				
	6.6	4.2		7.6	6.8					6.2	3.3			16.1				
9. Energy Consumption per capita (Kilograms of coal equivalent)	1960	1970	1978	1960	1970	1978	1960	1970	1977	1960	1970	1978	1960	1970	1978	1960	1970	1978
	98	142	161	395	697	903	260.8	396.3	506.9	4.462	6,599	7,060	404	489	1.620	347	1.709	2,117
10. Average national savings rate (percent)	1960	1970	1977	1960	1970	1977	1960	1970	1977	1960	1970	1977	1960	1970	1977			
	11.4	13.8	17.0	18.3	20.2	20.8	16.8	19.0	20	23.3	25.0	22.2	22.8	21.0	24.1			
11. Average annual growth rate of Exports (percent)	1960-70	1970-78		1960-70	1970-78					1960-70	1970-78		1960-70	1970-78				
	5.0	-0.8		5.5	5.2					8.7	5.7		9.5	1.2				
12. Average annual growth rate of Imports (per cent)	1960-70	1970-78		1960-70	1970-78					1960-70	1970-78		1960-70	1970-78				
	5.0	3.2		6.8	5.8					9.4	5.1		11.1	21.1				
13. Terms of Trade	1960	1970	1978	1960	1970	1978				1960	1970	1978	1960	1970	1978			
	98	100	98	93	100	90				99	100	95	100	100	393			

TABLE 5

Social Indicators of Development

	Low-income Countries			Middle Income Countries			Industrialised Countries			Centrally Planned Countries		
	1960	1970	1978	1960	1970	1978	1960		1978	1960		1978
Life Expectancy at Birth (years)	42	45	50	54		61	69		74	58		70
Child death rate (aged 1-4)	30		20	18		10	1		1	10		1
	1960	1970	1977	1960	1970	1977	1960	1970	1977	1960	1970	1977
Population per physician	28,292	24,702	12,823	4,095	3.446	2,825	831	738	639	742	587	514
	1970		MRE	1970		MRE		1970				
Percentage of population with access to safe water	13.7		25.8	46		53.5						
	1960	1970	MRE	1960	1970	MRE	1960	1970	MRE	1960	1970	MRE
Calorie supply per capita (percentage of requirements)	89.1	91.7	92.5	96	100.6	104.9	125 9	127.2	128.2		126.7	135.8
Percentages of labour in Agriculture	77.8	72.8	68.7	55.6	46.2	41.6	21.4	12.8	9.2	43.6	29.3	22.7
Percentage of Labour in Industry	6.6	7.8	9.3	14.8	18	20.8	38.7	40.2	40.6	28.6	36.4	43
	1960	1970	MRE	1960	1970	MRE	1960	1970	MRE			
Adult Literacy Rate	22.6	31.0	36.7	44	56.2	63.2	96.9	98.3	98.7			
Femrale School enrolment ratio	1960	1970	MRE	1960	1970	MRE	1960	1970	MRE	1960	1970	MRE
(a) Primary	23.0	37.3	48.7	60.5	73.1	81.2	104.8	104.6	103.5	100	101.4	99.3
(b) Secondary	1.6	5.9	8.2	7.7	17.0	26.2	53.2	68.3	83.8	36 8	67.2	74.6
	DEVELOPING COUNTRIES											
Percentage of Income received by lowest 20 per cent	1960	1970		MRE			4 3	6.2	5 1			
	4.5	4.9		4.1								
Percentage of income received by highest 5 per cent	24.6	29.4		19.4			19.2	14.0				

MRE : More Recent Estimates

Only Denmark the Netherlands, Norway and Sweden have reached the target. Overall the ODA GNP for all developed capitalist countries fell from .49 per cent in 1965 to .36 per cent in 1975 and finally to .34 per cent in 1980. Both the Organisation of Arab Petroleum Exporting Countries (OAPEC) and OPEC also decreased their ODA as percentages of GNP from 4.99 in 1975 to 2.43 in 1979 and from 2.71 in 1975 to 1.28 in 1979 respectively.

The Soviet ODA/GNP ratio hardly reaches 0.05 per cent a far cry from the 0.7 per cent goal.

Military Spending

The use of development funds released through disarmament was proposed in the International Development Strategy for the Second Development Decade. Progress towards general and complete disarmament was recommended to release substanial additional resources for the purpose of economic and social development, in particular that of developing countries.

World military spending reached $ 480 billion in 1978 exceeding outlays in public education, health and foreign aid, according to the U.S. Arms Control and Disarmament Agency. The report, which analysed the military budgets of 145 countries, observed that 28 developed countries, accounted for $ 370 billion. Spending by NATO and Warsaw Pact countries was roughly equal and accounted of 75 per cent of the overall figure of $ 480 billion.

The reasons for such huge arms spending is easy to understand. Fear and greed are institutionalised at a global level and arms spendings are necessary for the maintenance of the international status quo. The most sophisticated weapons, chemical and biologial weapons are necessary to maintain the present privileged positions.

The World Bank's way of describing the achievements of the global economy during the first and second Development Decades is reproduced in Tables 4 and 5. It will be evident that achievements fell far short of their targets The failure is not due to population explosion. It is the structural consequence of an economic order that is oriented towards the domination of a few over the majority, internationally as well as nationally.

The International Development Strategies, despite all the efforts of the past two decades, have failed to close the gap in per capita incomes between the developed and developing countries. As Table 4 shows, the average per capita income in low-income countries in the year 1950 amounted to only 1/23 of the average per capita income of the industrialised countries. That ratio fell to 1/39 by the year 1980. For the large majority of developing countries the gap would never be closed. Under the existing order, the international imbalances of wealth will certainly get worse. Since mass poverty and under-employment are both degrading and de-stabilising, their eradication is no longer a matter of charity, but security against a Third World War.

The Brandt Report is correct in recommending Global Taxation by way of levies on international trade, on military expenditure or arms exports, on energy consumption, on the mining of sea bed minerals, and a World Development Fund with universal membership and fully shared management and control. □

STEP BY STEP

Rose Plants in Three Months

THE Punjab Agricultural University (PAU) has achieved a breakthrough in growing quality rose plants. Under a new technique the new plants will be ready in three months instead of the normal period of about 15 months. The cuttings of Eduard rose are directly budded with the desired variety, then planted in pots filled with coarse sand. A pot with a 12-inch diameter would accommodate 50 cuttings. The pots after watering, are put in a semi-circular hut type structure which is only a frame of steel or wooden rods covered with a polythene sheet. This near airtight construction prevents dehydration due to evaporation and provides an atmosphere for plants and buds to flourish. There is almost a cent per cent success in the union of buds with the cuttings and these sprout within a month. The cuttings also take roots simultaneously. After the scions have grown about 15 cms in the month of December, the plants can be taken out of the big pots and planted one each in smaller pots or in polythene bags filled with soil mixed with compost. After a month's nursing the plants get settled in pots or polythene bags and can be issued to growers for planting. ☐

Bank of India's Achievements

THE Bank of India which was mainly for the benefit of traders and industrialists before nationalisation in 1969, has completely transformed itself into a common man's bank with sizeable rural operational base. In 1980 of the total increase of Rs. 125 crores in advances in India, Rs. 122 crores were advanced to the priority sector. The bank now has 68.3 per cent branches (numbering 1,385) in rural and semi-urban areas as against none before nationalisation. The percentage of its advances to priority sector increased from 31.2 per cent in 1979 to 37.2 per cent in 1980. In the case of implementation of the DRI scheme also the Bank of India is much ahead of others and the advances given under this scheme amounted to 1 per cent of the total advances.

A. R. Godbole, our senior correspondent and Editor, Yojana (Marathi)

Haryana Financial Corporation makes Record Profit

THE Haryana Financial Corporation earned a profit of Rs. 1.40 crore during 1980-81, the highest since its inception.

The loans given by HFC last year were higher by 66 per cent than those in the previous year. In comparison the average growth of sanction of loans was of the order of 31.63 per cent in all other State Financial Corporations in the country. The HFC sanctioned loans amounting to Rs. 10.55 crore in 1980-81 to 380 units as against Rs. 6.3 crore to 307 units a year earlier. ☐

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TRENDS

Afforestation in Madhya Pradesh

A MASSIVE plantation programme covering 63744 hectares, an all time record, has been successfully implemented in Madhya Pradesh during 1980-81. Another 59000 hectares are proposed to be brought under afforestation this year under the State Government's special forestry programme. The 1981-82 programme includes afforestating of 24000 hectares of barren land, restocking 25000 hectares of existing forest lands and preparation and supply of 250 million saplings for farm forestry. The afforestation programme has created employment potential of 15 million mandays.

The forests in Madhya Pradesh cover an area of over 156000 sq. kilometres that is 35.5 per cent of the total area of the state.

Drinking Water for Everyone

EVERY fourth villager in Haryana is now enjoying the facility of hygienic potable drinking water. Thanks to hundreds of cement concerte water reservoirs, dotting the countryside, which have been constructed during the past decade. The number of beneficiary villages getting water has increased tenfold since the inception of Haryana. It is estimated that by 1990, all the problem villages will be provided with hygienic potable water. ☐

Irrigation Scheme for Bihar Approved

THE Planning Commission has approved seven irrigation schemes for Bihar. Under the Rs. 1,126.93 crore schemes reservoirs will be constructed at Patratu, Tapkara, Suru, Torlo, Sonua, Nandini and Sindwarni. About 8,320 hectares will be irrigated by Patratu reservoir, 2,700 hectares by Tapkara reservoir, 29,361 hectares by Suru reservoir and 10,000 hectares by Sindwarni reservoir.

The Commission has also approved the Khatra Canal Irrigation project in Uttar Pradesh. ☐

Conservation of Furnace Oil

IN a bid to conserve petroleum products, the Petroleum Conservation Research Association (PCRA) has launched a scheme of replacement of inefficient boilers to save furnace oil consumption.

In a study conducted of over 1,000 industrial units, efficiency of over 4,500 boilers has been found to be below acceptable leval. Out of these over 2,500 boilers will have to be replaced by modern and efficient boilers over a period of time. This replacement will help save over 2.10 lakh tonnes of fuel oil valued at about Rs. 44 crores in a year.

To begin with the PCRA is launching a scheme of boiler replacement in Maharashtra where 1,600 inefficient boilers are in operation. The industrial units will be given loans to procure efficient boilers and the amount will be recovered in instalments. ☐

A. R. GODBOLE
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BOOKS

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Managing a Business

Managing A Business For India by T. Thomas: Allied Publishers Private Limited; Pages 246: Rs. 50.

THE book is a compilation of speeches of erstwhile Chairman of the Hindustan Lever Limited and consists of those delivered at the Annual General Meetings of the Company and at other Forums. Between themselves the subjects covered range from the general ones on Management of Businesses, Productivity and related matters of interest to the Economy as a whole and also specific ones of relevance to the company. The contents are based upon the experiences of the author and his reflections on the various policies bearing on the growth of the Indian business and industry. The account is readable and the comments are quite informative and reasonable. Governmental control of business prices, managerial remuneration etc. have been dealt with. A regime of price control in the long run generally leads to several developments which, it is the object of price control, at the start, to prevent. Some of these are erosion in quality, poor investment for future growth, continuing shortages leading to black marketing and black money. Because of increasing governmental control of business and industry and fear of public criticism of wrong decisions, decision levels have tended to be shifted upward resulting in considerably increased lead times for projects from conception to fruition. Continued and unrestrained criticism of Indian business enterprise may affect local business psychology and erode their credibility abroad. Indian effort to study, learn and adopt relevant experience from other countries is halting and poor. Capital and other resources are utilised imperfectly or inadequately and poor returns are the result. While one may not agree with all the observations of the author, they do deserve consideration at the hand of policy makers in the Government and those in charge of development of agriculture and industry in our country. Special mention may be made of chapters on "Managing a Business in India", "Relationship between small scale and large scale industry", "Productivity in the Indian Context" and "Management of Research and Development".

G.S.

Economic Development in the Third World

Problems of Economic Development in the Third World with a special reference to India by Kedar Nath Prasad, Sterling Publishers (P) Ltd. Pages 458.

PROBLEMS of economic development of developing countries, often referred to as the Third World. have assumed great importance during the last two decades. These developing countries comprise such diverse countries as the oil rich Arab states, on the one hand, and newly independent African countries with low per capita income and living standards on the other. The group also signifies, what the author calls, the giants of India and China.

There is a plethora of books and documents on problems of economic development in developing countries both from eminent economists as also various UN agencies involved in the task of assisting economic development in different parts of the world. This book namely, "Problems of Economic Development in the Third World" by Shri Kedar Nath Prasad is a welcome addition to this literature. The author has tried to make, what he calls, "an inquiry into certain inter-connected topics in development economics, with special reference to the problems of third world countries", for example India.

The author has tried to discuss some of the theoretical concepts in economic development. Some of the important ones are Implications of economic growth in underdeveloped countries, Economic Growth and population movements, the Balanced versus Unbalanced Growth Controversy and Social overhead Capital vs. Directly Productive Activities. The author has beautifully analysed the objectives of the Indian Five Year Plans in Retrospective—(Chapter 4) and Poverty and Inequality in India—(Chapter 7). The critical problem of unemployment in India has been reviewed in Chapter 8 under the title "Some Aspects of India's Unemployment'.

The author has also tried to bring in socialistic pattern of society as also impact of Gandhian Egalitarianism on the Indian Five Year Plans. The author has also shown awareness of the problem of rural industrialisation and removal of poverty and unemployment in India. But in spite of a detailed treatment of the specific problems of economic development in India the title of the book appears to be misleading. No attempt has been made by the author to discuss methodologically the problems of economic development in the Third World countries. In fact, it is surprising that in spite of a vast amount of papers resulting from the deliberations of the UNCTAD since 1964, not a single line has been written in regard to the problems identified at the various forums of the 'Groups of 77'.

Still Shri Prasad deserves to be complimented for the excellent book he has brought out. This could be of invaluable guide to thousands who are interested in specific problems of economic development in India.

The author devoting a full chapter on the 20-point Economic Programme—A Critical Estimate in Retrospect-appears to be out of place in the context of the theme of the book. On the whole, the book under review could be considered as a collection of papers on some problems of economic development in India. It is a misnomer to title the book as 'Problems of Economic Development in the Third World' with special reference to India.

K.S.Mehra

The Director-General of UNESCO, Mr. Amadou M'Bow, congratulates Professor Sergei Kapitza after presenting the Kalinga prize to him

Kalinga Prize to Soviet Scientist

PROFESSOR Sergei Kapitza, was awarded Kalinga Prize for the popularization of science. The Professor could speak with unsurpassed knowledge. His programme on Soviet television, transmitted from Moscow and relayed by satellite through eight time-zones, now has an audience of 40 million. It was for this work that an international jury decided to honour him with the £ 1,000 prize. He is the second Soviet citizen to win the prize since it was first awarded in 1952.

As a researcher and author of more than 70 original scientific publications in fields such as hydro-dynamics, magnetism, electro-dynamics and micro-wave physics, Professor Kapitza starts from a basis of indisputable expert knowledge. Popular science, he told his audience, is no substitute for an education, but the popularizer can supply what is often lacking in modern teaching—which tends to neglect broader issues—by helping the public at large to develop attitudes towards science.

In his programme, Professor Kapitza, who is a son of the 1978 Nobel Prize winner Professor Peter Kapitza, has called on other Noble laurates and top experts to discuss elementary issues. "It is not the special knowledge that is so important; what we are after is the attitudes of these top people. They have the scientific and moral authority to broadcast their attitudes and this is what the public expects; the human message the people have a right to receive." "It is recognized today that science and scientists are essential links in establishing links of mutual understanding between nations. Much can be done in this respect and I hope that both the scientific community and the media will co-operate more on these matters." he adds.

A view of the community biogas plant

Biogas Plant at Dhaneev

A. R. Godbole*

A community gobar gas plant project is taking shape at Dhaneev in Thane district near Bombay under the auspices of the Khadi and Village Industries Commission. The first of its kind in the country, the project aims at supplying gobar gas (Biogas) for cooking and, if possible, for lighting to about 40 hamlets of the village Dhaneev. The villagers owning above 100 cattle have agreed to supply cowdung everyday as feed-stock for the plant.

The project, which was taken up by the KVIC about three months ago, has now started producing gas. What remains to be done is to give connections to the residents. It is a chain of three gas plants which will produce gas from cowdung, night soil and agricultural waste respectively. Each of these plants is capable of producing about 1500 cubic feet of gas per day The KVIC proposes to construct 12 such Community Plants in the country.

At the starting point the first gas plant will be fed with cowdung. After taking about 70 to 80 per cent of gas, the slurry in digester will be transferred to another tank which will produce gas from night soil. For this purpose, about 8 latrines have been constructed and are directly connected to the digester of the new plant. This has to be done because night soil does not ferment properly without addition of cowdung to the slurry, although it gives maximum amount of gas.

The slurry from this plant will then be transferred to the third plant which will produce bio-gas from agricultural waste and some plants like hycinth. Each of these link plants will produce 1,500 cubic feet of gas or total of about 4,500 cubic feet per day. The project has so far cost Rs. 2 lakhs and about Rs. 40,000 will have to be spent for giving connection to every house in that village.

A village kitchen with biogas connection for cooking and lighting

The KVIC have also decided to make use of the surplus gas for running a water pump at village well. Water drawn from the well will be stored in overhead tank and supplied to the villagers through a pipeline. The KVIC plans to instal 20,000 gobar plants this year all over the country. At present about 80,000 such plants are in operation. Eleven thousand of them are in Maharashtra.

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*Our Senior Correspondent and Editor, Yojana, (Marathi)

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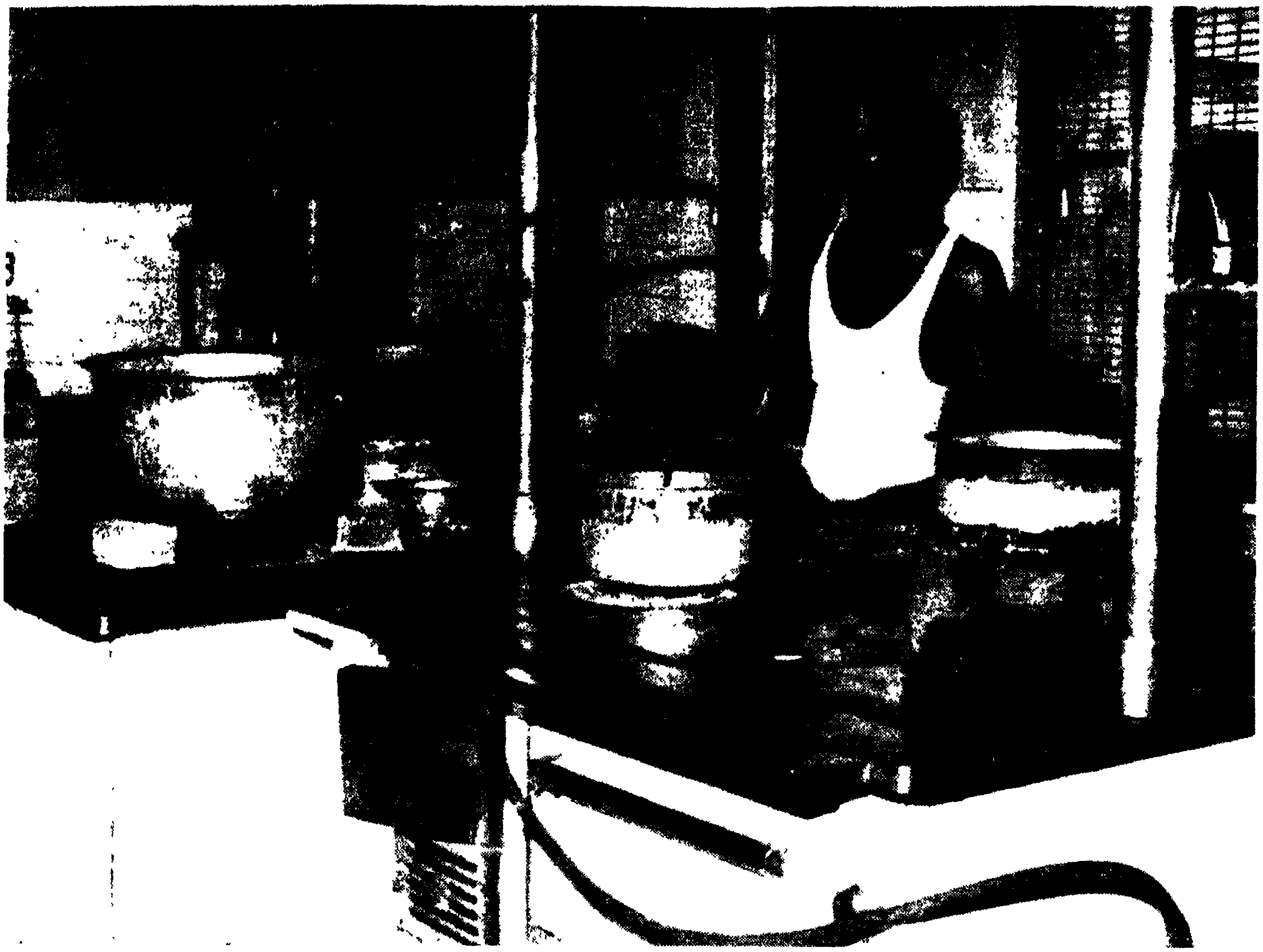

Kitchen in a Delhi Restaurant using Sullage Gas

Sullage Gas in Delhi

A cheap and reliable supply of fuel for today's urban households is a possibility. A pathway to this has been shown by the Delhi Water Supply and Sewage Disposal Undertaking. Some 700 poor and well-off residents of the capital are using it by the turn of a tap. It has crossed the experimental phase and there are plans to provide piped gas to 10,000 consumers within a short-period.

The water used in lakhs of Delhi homes and human excreta flushed down the toilets (known as sullage) flows out at the rate of 800 cubic feet per second. In the process of disposal, several usable by-products are generated-sullage gas, treated water for irrigation and manure.

At present the Okhla sullage treating plant produces 600,000 cubic feet of gas every day. This is equivalent to 600 gas cylinders but a large quantity of it is burnt off to avoid air pollution.

The idea of converting sullage into gas for domestic use originated a decade ago. The pilot scheme of piping it into a few houses and institutions in the vicinity materialised recently.

Some residents of Sarai Julena village have availed of gas connections, for which each had to invest about Rs. 700 for the pipelines, the gas burners and security deposits. This continuous gas supply is at a monthly charge of Rs. 18 for a family of five-for each additional member, Rs. 3 is charged extra.

The flame is smokeless. Besides, the family saves 20 to 30 rupees a month, which would be needed for alternative fuels-kerosene, cylindered gas, firewood or coal.

The machinery and equipment needed for expanding the gas production and distribution are indigenously available. A modest investment of Rs. 1.29 crores, that is Rs. 1290 per consumer, is adequate to take it to 10,000 homes. Fifteen residential colonies will be covered in this expansion scheme spread over four years.

At present the various sewage plants in Delhi are treating only 60 per cent of the sewage generated even though they are overloaded by about 50 per cent. Expansion programmes are being completed at feverish pace and when they become operative, more gas will

(Contd. on Cover III)

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Editorial

From Recovery to Growth

A review of the progress made in the first year of the Sixth Five Year Plan shows that the economy of the country has definitely recovered from the previous year's slide-back. As against the decline of 4.5 per cent in 1979-80, the overall growth rate was about 7 per cent in 1980-81. Agricultural production increased by a record 19 per cent and industrial production by 3.6 per cent. As a result of the special efforts made by the Government, there was good improvement in the infrastructure items like power, transport and coal. The expenditure on the public sector was almost the same as envisaged for that year under the Plan, that is, Rs. 15,109 crores. The levels of domestic savings and capital formation were higher in 1980-81 than in the previous year. However, some adverse factors were also noticed during the year. Governmental budgetary surplus and internal resources from the public undertakings could not be mobilised to the desired extent. As a result, the deficit financing was much more than budgeted for. Price rise continued—wholesale prices increased by about 21.4 per cent. Even though production of foodgrains increased substantially, there was some shortfall in their procurement and also shortage of pulses and oilseeds. Steel and cement were also in short supply. The production of other industrial goods increased but that of crude oil, petroleum products and indigenous fertilizers declined. Another disturbing factor was the huge increase in the foreign trade deficit—Rs. 5,435 crores as against Rs. 2,439 crores in the previous year. The main cause for this was the hike in the prices of imported oil.

The Annual Plan for 1981-82 has stepped up the investment in public sector by about 15.3 per cent. It envisages an overall growth rate of 4.5 per cent. This is less than that of the previous year because agricultural growth will be comparatively more modest, but industrial growth will be more than the last year namely 8 per cent. The Annual Plan has given high priority to energy, transport, irrigation, steel and fertilizer sectors. In agriculture, special efforts will be made to increase the production of pulses. The Plan places emphasis on the completion of on-going projects and fuller utilisation of existing capacities so as to get early returns. It has provided for less deficit financing than last year's level and has again called for more mobilisation of budgetary resources and profits from public undertakings. The Plan document has cautioned the Government of the continuing adverse factors like inflation, rising prices, infrastructure constraints, shortage of some essential articles and the possibility of more trade deficit. During its recent full meeting the Commission has stressed the need for better financial discipline by the Central and the State Governments. It has asked the States to strictly adhere to the Plan programmes and subject their projects to a greater scrutiny with regard to financial costs and time span. This caution is timely since some States have been seeking to execute fancy projects with the help of petro-dollars. The Commission has also repeated the need for restraining non-Plan expenditure.

(Contiued on page 27)

The Sixth Plan : A Critique

R. C. Dutt*

THE Sixth Plan has recently been approved by the National Development Council and is now in its second year of implementation, having taken effect from April 1980. The time is not yet for a mid-term appraisal and it is not the intention of this paper to do so; not even to examine critically the various targets, financial and physical, which the Plan has set. Our object here is to consider, in the light of the existing conditions and policy trends, as they have emerged in recent years, how far we have deviated from the concept of planning, adopted shortly after independence thirty years ago, and, consequently, how far declared objectives and targets of the Sixth Plan, to the extent they are consistent with the objectives and targets we have adopted over the years, are likely to be attained.

The intention thus is not to emphasise the gap between promise and performance, which undoubtedly exists, but which is often conveniently put down to inadequate implementation that can be cured by tightening up the administration, but to highlight in the context of the Sixth Plan the contradictions between plan and policy—contradictions which threaten to distort the entire process of planning as originally conceived, to thwart the national objectives which were adopted soon after independence, and to lead us in the direction of unplanned growth, with results far removed from what we had hoped to achieve.

Concept of Planning

The concept of planning India adopted soon after independence relies for its validity on the premise that the unplanned, capitalist type of development in response to market forces, determined by the quantum of profit which the development process yields, does not necessarily meet the objectives an underdeveloped society has to keep in view to ensure balanced development. These objectives, as the Sixth Plan has rightly summarised them, are : "Growth, Modernisation, Self-reliance and Social Justice". Of these, growth may to an extent, at least for the short-term, be ensured by unplanned development, though even here the limits of growth are set more or less rigidly by the capacity of an indigent population to save on the one hand, and to buy the increased products and services thrown up by the process of growth on the other. But unplanned growth based on the motive of private profit carries no assurance that the feudal, colonial economy of the type that India inherited at the dawn of independence would be converted into a modern agro-industrial one, and even less that it would be self-reliant and do justice to all sections of the population. To attain these objectives, economic development has to be planned, and the State has to obtain sufficient control of the economy so as to implement the plan.

In a centrally planned socialist economy that is not difficult, for the entire economy is under the direct control of the State. In a mixed economy, as in India, on the contrary, it is only the State sector or the public sector, as it is called in India, that is under the direct control of the State where State plans can be implemented by appropriate investment decisions. In the private sector these decisions are taken by individuals who are not under state control. Incentives and discentives can to an extent influence the decisions, but incentives, such as subsidies and tax benefits, eat into the resources at the disposal of the State and, as we shall note hereafter reduce the capacity of the State to invest. The only other method open to the State is to regulate private decisions and ensure their conformity with plan-priorities by a system of control such as licensing, import regulations, etc., in the case of industries, and by direct intervention in the case of agriculture. The latter takes the form of providing security of tenure by appropriate legislation, redistribution of land under ceiling laws and active encouragement of co-operation in agriculture. These even if they do not bring agriculture under direct State Control, create conditions in which the objectives of development can be attained without resistance from pressure groups whose interests lie in maintaining the status quo.

In the light of these observations it is now proposed to examine to what extent conditions have been created by appropriate policies in recent years that are conducive to plan implementation and in particular what the objective conditions in the country are today. To start with agriculture and the rural areas, the objective facts are that while landlordism was abolished, land ceiling laws were largely evaded and the available land was maldistributed between large land-owners, on the one hand, and marginal and subsistence farmers, on the other. According to para 1.50 of the Sixth Plan (p. 8) (vide Table 1.6) 26.3 per cent of the area operated was held in holdings of over 10 hectares by 3 per cent of the peasant-owners while another 24.4 per cent held another 50.2 per cent of it. The bulk of peasant owners constituting 72.6 per cent held the remaining 23.1 per cent of holdings below 2 hectares. These figures do not take into account the millions of agricultural labourers who own no land at all. If these unfortunates are included the figures of distribution of assets in the rural areas get further distorted. According to Table 1.5 (p. 8) of the Sixth Plan, the lowest 10 per cent of the rural population owned only 0.1 per cent while the top 10 per cent owned 51.0 per cent of sets in 1971. Taking an even larger segment of the population, the bottom 40 per cent owned 2.0 per cent of the assets while the top 30 per cent as much as 81.9 per cent in the same year.

The measure of concentration economy wealth figures reveal cannot but be reflected in the distribution of economic power. The affluent landowners have developed into vested interest whose impact on the development of the economy cannot be ignored. This had made itself in several ways, perhaps the most important of which was to obstruct the progress of land reforms which would have threatened dominance of this group in the rural economy. Successive Five Year Plans have bemoaned the tardy progress of land reforms, and the Sixth Plan has attributed it not to "flaws in policy but to indifferent implementation". (para 9.9, p. 115). This may be true but it ignores the fact, deliberately or otherwise, that implementation has been indifferent because it has been unable, and often even unwilling, to overcome the resistance of interested groups. More exhortation to better implementation or even a time-bound two-year programme, as the Sixth Plan presents, is therefore uncovincing. Indeed, according to the Sixth Plan (para 9.95) "out of about 15.74 lakh hectares declared surplus in different States as in March 1980........ about 6.79 hectares (have been) distributed".

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*Chairman, Standing Committee on Public Sector Enterprises

Obviously, less than half the task of redistribution has been accomplished by efforts spread over a quarter of a century. To hope that the greater half of the task will now be completed in two years, in spite of the resistance it will undoubtedly countinue to encounter from vested interests that have come into existence, does not, to say the least, carry conviction.

Another consequence of the structural imbalance created by the gross maldistribution of land is that the efforts of the State to improve the lot of the poor have been frustrated, as the benefits meant for them have been apropirated by the rich with their stronger local influence. This is illustrated by the figures compiled by Dr. K. N. Raj on the flow of credit to the rural areas from various sources, government or otherwise. According to these figures, only 15.6 per cent of the loans advanced by coperative societies and 26.1 per cent by Government went to 69.4 per cent of the rural households belonging to asset groups owning less than Rs. 10,000, while 31.4 per cent of the former and 21.3 per cent of the latter were available to 3.9 per cent the households owning assets more than Rs. 50,000.

However, the bulk of loans advanced by professional money-lenders and landlords, presumably at high rates of interest, namely 45 per cent and 50 per cent respectively, went to the poorest section, while the more affluent sections owning more than Rs. 50,000 assets drew only 12.7 per cent and 14 per cent respectively of such loans. In other words, benefits of institutional finance at reasonable interest rates have gone to the more affluent sections of the rural population, while the poorer sections continued to rely much more heavily than the richer sections on landlords and professional moneylanders.

Failure of Community Development Programme

A more serious consequence of emergence of a dominant group of landowners in the rural areas is the change in the pattern of agricultural strategy to suit their interests. The startegy of agricultural development under Nehru was to increase agricultural production with the help of intensive cultivation by peasant owners, among whom land was sought to be redistributed with reasonable equity As an incentive to such intensive cultivation the tenancy laws were sought to be amended to provide security of tenure to the actual tiller. To encourage this form of rural development Nehru introduced the Community Development programme, the object of which was to encourgae the rural poor to improve with their own effeorts, but under the guidance of the State, their economic and social status. This programme failed to achieve the desired objective, not because of its conceptual weakness but because an important component of the programme, namely, land reform, was not fully implemented. In the absence of such implementation, the benefits of the Community Development programme were appropriated by the rural rich, who continued to exercise undue influence in the rural areas, and denied to the poor for which they really intended.

Instead of correcting this deficiency and implementing Land Reforms, however, the entire Commenting Land Reforms, however, the entire Comand replaced by a strategy of capital intensive development, the benefits of which were available only selectively to owners of large plots with assured irrigation facilities, who had the capital to invest and take advantage of such methods. While this strategy has brought prosperity to certain regions, e.g., Punjab and Haryana, it has aggravated disparties, on the one hand, between these regions and those which have not benefited from the "green revolution", and, on the other, between the rich and poor in these regions. The capital-intensive type of development has also had the consequence of diverting resources from more basic, infrastructural requirements.

As fertiliser consumption increased with this type of development, heavy investments for production of fertilisers had to be made, diverting capital from other requirements. Supply of fertilisers had also to be further augmented by purchases abroad, consumming precious foreign exchange. Such concentration of capital and foreign exchange on agriculwould not have been open to objection if it was really necessary to do so to increase agricultural production. It is the concentration of resources to meet the requirements of a small fraction of the landowning community to the neglect of much larger numbers of marginal and subsistence farmers, whose lands, on account of insecuirty of tenure and lack of resources, continued to landguish, that attracts legitimate criticism.

While resources were heavily concentrated on large farms the agricultural census showed that 12.4 million hectares available for cultivation were lying uncultivated. This figure inculdes 6.4 million hectares owned by large landowners owning 10 hectares or more. Cultivation of this fallow land by co-operative or other labour intensive means could have added to production without the strain on scarce resources imposed by the capital intensive methods which were put into practice.

Dominance of Landed Interests

The dominance of landed interests in the rural areas has also affected the mobilisation of resources for development purposes. The continued unwillingness of the State Governments to tax agricultural income on any significant scale in spite of the acute stringency of resources for investment can only be attributed to the dominance of landed interests. This has also resulted in continued pressure to increase procurement prices of foodgrains, and now threatens to jeopardise the entire procurement activity of the State. These are dangerous portents which can be met only if the State is in a position to discipline the landed interests. Higher procurement prices, in the name of incentives, benefit only the larger landowners who have surpluses to offer, and they result either in higher issue prices or larger subsidies by the State to keep down issue prices. In either case they generate inflationary pressures and tend to frustrate the efforts of the State to control prices.

The tendency to vitiate state procurement in an attempt on the part of the rich landowners and traders to secure higher profits from foodgrains transaction was recently highlighted by poor procurement in Punjab and Haryana this summer. While further efforts by State Governments may to an extent improve procurement, there is no doubt that rich landowners allied with foodgrain traders have now acquired the capacity to compete with State procurement authorities, hoard foodgrains so acquired, and later release them in scarcity areas or in lean seasons at prices dictated by themselves. This threat to State procurement endangers the entire foodgrains distribution system of the State, on which the poor rely so heavily, apart from reducing the capacity of the State to take up programmes like Food for Work, now re-named National Rural Employment Programme (NREP), which is one of the few schemes the Sixth Plan sponsored for employment generation and alleviation of poverty.

Public Sector Outlays

While with the failure of land reform, the abandonment practically of the Community Development Programme and the growth of the capitalist type of production, which the Plan is either unable or unwilling to restructure, its role in agriculture is restricted to supply of basic requirements like irrigation facilities, and inputs like fertilistrs, improved varieties of seed, etc., in the industrial sphere too the scope of planning is getting more and more limited. The Plans as stated earlier can be implemented directly only in the public sector, but the resources available for such direct investment are shrinking because of increased flow of resources to the private sector in the from of subsidies and tax concessions. It is no surprise in the circumstances that the investment made in the public sector in the last year of the Third Plan, that is in 1965-66 was not exceeded in real terms till ten years later, that is in 1975-76. Even as a portion of total investment the planned investment in the public sector which was 54.6 per cent in the Second Plan and 63.6 per cent in the Third Plan fell to 60.3 per cent in the Fourth Plan. The draft Fifth Plan provided for an investment of 66.0 per cent but was revised to 57.6 per cent in the revised Plan. In the Sixth Plan public sector investment is only 53 per cent of the total, a proportiton lower than any since the Second Plan commenced in 1956. Even this low proportion represented by Rs. 97,500 crores at 1979-80 prices may not be attained.

During the first two years of the Sixth Plan, 1980-81 and 1981-82, 40 per cent of this amount, or Rs. 39,000 crores at 1979-80 prices should have been allotted. But in fact Rs. 26,901 crores at current prices were made available. The shortfall even in nominal terms is thus about 31 per cent. In real terms, taking into account the price rise in these two years, the shortfall is still higher. The prospects of this shortfall being made up in the remaining three years of the Plan are remote, for as prices continue to rise, even if at a lower rate than before, and, as reluctance to impose new taxes or reduce subsidies grows in response to pressures of vested interests continues, Government will find it increasingly difficult to maintain the public sector outlay in real terms at the level provided in the Plan, not to speak of making up the deficits of the first two years.

Private Sector

In regard to the private sector the effectiveness of the Plan to ensure its objectives has been greatly impaired by a gradual dismantling of the control apparatus over the years. The system of controls, never imaginatively utilised to further plan objectives, caused considerable delay and even harassment to the parties concerned by its dilatory procedures. Instead, however, of removing these defects the easier option of progressively dismantling the system was adopted from the mid-sixties in response to the demand of vested interests. The result has been lopsided development of the private sector not only in the sense that it has catered to luxury demands not contemplated in the plans, but also in that it has led to a high concentration of wealth and economic power in the hands of a few, as revealed by recent studies, contrary to the avowed intentions of the planners.

This policy trend to "free" the economy from controls and provide "incentives" for growth without an adequate control on the nature of growth has been a constant feature for the decade-and-a-half. The Janata party with its ill-assorted mix of diverse groups and interests, who had not evinced much enthusiasm for planning had no hesitation in the name of a rolling plan to negate some of the features of the concept of planning. The restoration in authority of the Congress, however, heirs to the great Nehru tradition of planned development with its emphasis on heavy industry, land reforms and co-operation in agriculture on a voluntary basis, revived hopes of balanced, planned development. The perspective was indeed restored theoretically, but it brought no practical relief. The policy of subsidies and incentives to the private sector continued, as the last two budgets have shown, reducing thereby the capacity of the State to invest in the public sector. As regards the mechanism for the control of the private sector, its dismantling was almost completed with the industrial policy statement of July 1980. Instead of strict enforcement of the licence system and detailed scrutiny of schemes for collaboration with foreign capital, past violations of licensed capacity requirements were regularised, automatic expansion in a long list of industries outside the licensing procedure allowed up to certain limits, and collaboration, financial and technological, with foreign capital, including foreign multinationals, encouraged in the name of export promotion, bidding adieu in the name of growth to self-reliant, planned development.

The Sixth Plan offers no solution to this gradual erosion of the concept of planning for self-reliant growth with social justice. Nor is there any prospect of the structural imbalances which have crept in being modified. The concentrtion of wealth and economic power as reflected by maldistribution of both industrial and agricultural assets continues to grow, frustrating efforts to ensure social injustice. For allevation of poverty the Sixth Plan relies on the Integrated Rural Development Programme (IRDP), on the National Rural Employment Programme (NREP), and on the hope (para 3.71) that "a redistribution of 5 per cent of the cultivated holdings above 5 acres to small farmers and agricultural labour households will have the affect of increasing income accruing to this class by about 20 per cent." This last item regarding redistribution of holdings besides being unrealistic is more in the nature of a hope than a programme. According to figures compiled by Dr. K. N. Raj the area operated in holdings above 5 acres was 283.9 million acres. Of this five per cent would be about 14 mililon acres. What chances there are of land of this order being redistributed during the Sixth Plan period can be judged from the fact that, according to para 9.95 of the Plan, only 6.79 lakh hectares of ceiling surplus land i. e. about 1.6 million acres, had been idstributed during the last quarter of a century up to March 1980.

Reliance on I. R. D. P. and N. R. E. P. may prove equally frustrating. The first two years of the Sixth Plan have certainly not been encouraging in this respect. Out of the planned outlay of Rs. 1500 crores on IRDP, the proportionate outlay for the first two years should have been Rs. 600 crores at 1979-80 prices. In fact, it has been Rs. 334 crores at current prices. There is no doubt that with inflationary pressure and resource stringency continuing to operate, the gap between the planned and actual real outlay on IRDP will continue to widen further rather than be reduced. The prospects in regards to NREP are no better. With the provision that half the outlay on this account should be provided by the State Governments, it is likely to suffer from the inelasticity of State resources. What is even more serious, however, is that with foodgrain reserves falling on account of poor procurement, there may not enough to spare for this programme which, in any case, is unpopular with richlandowners who fear that with alternative avenues of employment agricultural labour may demand from them at least the minimum statutory wages which in most regions of the country they do not get at present.

Issue Before the Nation

The choice before the nation today is between growth as such, which in practice means unplanned, capitalist growth, and planned, self-reliant growth with a direct attack on the problesm of poverty. The issue between these two types of growth was joined the day the concept of planning was officially accepted by independent India. The odds were however, against unplanned development as long as Nehru lived. Thereafter, the tide turned, and though the issue has been fought with varying fortunes, the planners seem to have now lost the battle, at least temporarily. The ritual of planning still exists, but ritualism is not enough. A Plan must have a framework of policy to support it. In the absence of such a framework, a Plan ceases to be a blueprint for implementation and becomes merely a statement of desirable objectives unrelated to reality. The gap between the Plan objectives inherited from past traditions and the realities uncontrolled by an adequate policy framework assumes the form of a contradiction between policies and avowed goals which, if unresolved, can only lead to a breakdown of the entire system.

This view is neither fanciful nor in fact unduly alarming. It has, in fact, been best summed up by Dr. K. N. Raj who said : "All in all it seems highly probable that the rate of growth of agricultural output will rise somewhat above the level established in the course of the last quarter of a century, carry along with it the rate of industrial growth as well, and thus help the economy to achieve an average rate of growth of about 4 to 4.25 per cent annum". But significantly, Dr. Raj added : "This does not of course mean that the problem of mass poverty and of unemployment in the country are likely to find a solution in the foreseeable future".

Referring to the "growing class of workers in the countryside", he concluded : "Since the core of rural poverty in India is in this class, and not much can be done to increase the employment opportunities for them in areas in which their highest concentrations are to be found, one can safely predict that, within the pattern of development that has been emerging in the country, there is little hope of their conditions improving in the foreseeable future except in some areas where the rate of growth of agricultural output is high enough to absorb them in productive employment.

Structural Changes Necessary

All that needs to be added to this very perceptive assessment to complete the thesis advanced here is that while planning and indeed state investment will still be required to provide infrastructural and input facilities for the type of development which has emerged, that planning would be entirely different from planning for modernisation, self-reliance and social justice which was initiated in 1951. Planning of the latter type has lost its relevance and its objectives cannot be attained without significant structural changes and a complete revision of the present policy framewofk.

In the absence of the efforts at such changes, of which the Sixth Plan gives no indication, its targets of increased employment and alleviation of poverty will make little impact, while growth of the dependent as distinct from self-reliant variety may continue for a while, though at rates lower than that envisaged by it, until lack of purchasing power in an undeveloped and highly disparate society sets a limit to growth in the domestic sphere, as the vicissitudes of the international, capitalist market set a similar limit in the sphere of export. □

Soyabean Revolution in Madhya Pradesh

THE cultivators in Madhya Pradesh have taken to Soyabean cultivation in a big way. Arrangements have been completed to bring about seven lakh hectares under Soyabean cultivation in the current Kharif season as against 4,50,000 hectares during the year 1980-81.

The area under Soyabean has registered elevenfold increase during the last 5 years. Soyabean production last year was about 3.50 lakh tonnes and is expected to be more than five lakh tonnes during the current year. Now Madhya Pradesh is the largest Soyabean growing State in the country. The Central Government have sanctioned Rs. 1.30 crore as financial assistance for further development of Soyabean in Madhya Pradesh. The State Government have prepared a five-year expansion programme for Soyabean cultivation. The cultivators are being provided with special incentives in the form of improved seeds, fertiliers and pesticides.

The Sixth Five Year Plan and Social Justice

C. T. Kurien*

FROM the early years of planning in our country-indeed from the days of the freedom movement when thinking on future economic and social policy began to be articulated-social justice has been one of the major objectives of the planning process. But the emphasis on social justice came to have a new dimension and an added urgency from the early seventies. The Fifth Five Year Plan, especially the early documents relating to it took shape within such a context. In fact the professed emphasis on social justice came to be known as the New Economics in those days. It was spelled out as follows in *Towards an Approach to the Fifth Five Year Plan* : "In elaborating our strategy of development in earlier Plan documents we seemed to have assumed that a fast rate of growth of national income will itself create more and fuller employment and also produce higher living standards for the poor. We also seem to have assumed that for reduction of disparities in income and wealth, the scope of redistributive policies is severely limited. However, the economy has now reached a stage where larger availability of resources makes it possible to launch a direct attack on unemployment, underemployment and poverty, and also assure adequate growth". The "direct attack on unemployment, underemployment and poverty" while ensuring adequate growth has been the new dimension of social justice in our plans since then, and it is the same emphasis that is seen in the *Sixth Five Year Plan* 1980—85 also. "The Sixth Plan has been formulated against the background of a perspective covering a period of 15 years from 1980-81 to 1994-95. This development perspective visualises accelerated progress towards the removal of poverty, generation of gainful employment and technological and economic self-reliance. The strategy to attain these goals has been chosen after considering a variety of feasible alternative development profiles with their attendant costs and benefits. Experience shows that a substantial acceleration in the overall rate of growth of our economy, and as measured by the growth of gross domestic production in real terms, is an essential condition for the realisation of these objectives. However, there is also convincing evidence which points to the limited effectiveness of 'trickle down' effect. Therefore, consistent with our overall social and economic objectves, public policies will have to acquire a sharper redistribution focus in raising the share of the poorer sections in national income, consumption and in the utilisation of public services."

And, indeed, the Plan document outlines a wide array of programmes for the benefit of the poorer and handicapped sections of society. Not all of them can even be enumerated in this brief article; neither is it necessary. However, a few of them may be referred to in order to bring out the extent and variety of the programmes. By far the largest part of the poorer sections in our country is in rural areas—agricultural labourers, small farmers, share cropers, rural artisans and the like. The Plan's strategy and methododlogy for rural development consists of :

(a) increasing production and productivity in agriculture and allied sectors ;

(b) resource and income development of vulnerable sections of the rural population through development of the primary, secondary and tertiary sectors ;

(c) skill formation and skill upgrading programmes to promote self and wage employment amongst the rural poor ;

(d) facilitating adequate availability of credit to support the programmes taken up for the rural poor ;

(e) promoting marketing support to ensure the viability of production programmes and to insulate the rural poor from exploitation in the marketing of their products ;

(f) provision of additional employment opportunities to the rural poor for gainful employment during the lean agricultural season through a national rural employment programmes (NREP) :

(g) provision of essential minimum needs ; and

(h) involvement of universities, research and technical institutions in preparing a set of projects both for self employment and NREP and in preparing strategies for the scientific utilisation of local resources.

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Programmes like SFDA, MFAL, IRDP which have been going on for almost a decade for the benefit of the rural poor will continue with greater attention paid to their proper implementation. It is proposed that 3000 families on an average in each block from the bottom rank of the rural population below the poverty line will be given specific assistance during the plan period so as to lift them above the poverty line. A special scheme of Training of Youth for Self-Employment (TRYSEM) will be operated as part of IRDP for the benefit of identified households and the NREP will be more effectively implemented ensuring also that the wage paid under the programme is on par with the minimum agricultural wage prescribed for each area and that contractors are totally excluded from the execution of the programme.

Village and Small Industries are another set of activities in which the poorer sections are engaged in large numbers. The policy support for the development programmes relating to the VSI sector during the Sixth Plan will consist of :

(i) integration of the promotional programmes in the sector with other area development programmes and adoption of a cluster approach particularly for the traditional industries ;

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(ii) development of appropriate technologies and skills ;

(iii) increasing availability of raw materials including creation of buffer stocks ;

(iv) accelerated flow of institutional funds specially in favour of artisans, village industries and 'tiny' units ;

(v) organisation of producer-oriented marketing and selective reservation of items for exclusive production and purchase from the cottage and small industries.

The Minimum Needs Programme for providing social services according to nationally accepted norms will also continue with emphasis on elementary education, rural health, rural water supply, rural roads, rural electrification, nutrition and housing. Apart from being of direct benefit to the poorer sections, it is hoped also that the programme will generate incomes and employment in the rural areas.

The Plan also makes special provision for the development of scheduled castes and scheduled tribes, of the blind and the handicapped, of children of school going age and of women who constitute a major part of the labour force, but whose special requirement needs to be adequately provided for.

Organisations of Rural Workers

Of a somewhat different kind are programmes designed to facilitate the establishment and growth of strong and independent organisations of rural workers, including agricultural labourers, artisans, share croppers, tenants and small farmers so that they get their due share in the benefits of economic and social development. The Plan document also indicates measures to see that the abolition of bonded labour is strictly adhered to and that minimum wage legislations are enforced. It also recognises the special problems of migrant labourers, especially of construction workers, who frequently move from place to place and have to live and work under very unsettled conditions.

In terms of its recognition of the special needs of such a wide variety of groups in our country and in terms of its attempts to meet them, the Sixth Five Year Plan is seen to be a compassionate document. But the real question is not whether the Plan document expresses the appropriate sentiments about social justice, but whether the Plan in action will achieve it. Unlike growth which is conveniently (through certainly not satisfactorily) represented as a number and hence can be quantitatively appraised, social justice cannot easily be measured or evaluated. And yet some numbers can be brought in to make some informed judgements about social justice. For this purpose we must first turn to the past, recalling (as noted earlier) that achievment of social justice has been a major plank of our planning from the very beginning and with renewed emphasis from the early seventies. And if, as the Sixth Plan states, the first dimension of social justice is "an improvement in the living standards of the poorest groups in society", an obvious way of assessing the impact of the plans on social justice is to enquire what in fact has been happening in these groups. Certainly some agricultural labourers are getting higher and more steady wages, some small farmers have been able to improve their position, some artisans have more steady jobs, some small industrialists have graduated and become large industrialists. However, the Plan document admits that "nearly 50 per cent of our population has been living below the poverty line continuously over a long period". The long period referred to must be at least from the beginning of the Sixties when the first major estimate of the percentage of people below the poverty line was made on the basis of an officially prescribed poverty line. If this is true, one must conclude that in an overall sense the plans of the past have not had much positive impact on social justice. It must be noted immediately that over the same period the 'growth' of the economy has been quite impressive. According to the Plan document itself, the trend rate of growth of national income between 1950-51 and 1978-79 was 3.5 per cent compared with 1.2 per cent of the period between 1900-01 and 1945-46. Neither was it the case that growth was completely neutralised by the increase in population though it was quite phenomenal. For, during the 1950-51 to 1978-79 period, per capita income grew at a trend rate of 1.3 per cent which, though not very striking is not negligible either. The fact is that planned development effort has not reached a major section of society which consists of poor people.

It is important to recognise that this has not merely been a macro problem. The Plan document admits that even in the case of specific programmes there have been evidences of the same tendency. On the basis of its assessment of the special programmes which were in the past designed specifically to benefit the poorer sections in the rural areas the document says : "Only a small fraction of the rural poor has so far been covered effectively by these poverty amelioration programmes. Even amongst those covered, a sizeable portion is of those who had some land. The bottom rung of the rural poor, i.e. the landless and the rural artisans, who are the poorest have in most cases been left untouched." Again, "In spite of credit expansion (from about Rs. 250 crores in 1973-74 to about 600 crores in 1979-80) the share of the 'tiny' units with investment upto Rs. 1 lakh has been very little." So the macro problem of the percentage of population below the poverty line not getting reduced is the reflection of the micro problem that there is some kind of a "resource barrier" that even the most carefully designed programme is not able to break through. There is a passage in the Plan document that explicitly recognises the problem : "In spite of various measures taken so far, there has been no significant dent yet in the problem of income disparities. While this is attributable partly to the limitations of the measures adopted and shortcomings in their implementation, *the development process itself has also tended to benefit more the favourably placed sections of the community*". (emphasis added)

Social Justice

But why has this been so ? We may turn to the basic strategy of the Plan. The macro strategy of the Sixth Plan bears close resemblance to that of the Fifth Plan and consists of the following : (i) a stepping up of investment to accelerate growth ; (ii) an increase in public consumption to augment social services "to achieve a significant improvement in the standard of living of the poorer sections of the population"; and (iii) a redistribution of private consumption in favour of the poorer sections by imposing curbs on the consumption of the richer sections. Of these, (i) and (iii) are the more important ones, and there is an implicit assumption linking the two. That assumption is that the stepping up of investment leading to growth will directly benefit "the more favourably placed sections of the community" because access to the benefits of development depends very much on one's resource endowment and resource power. There may be a simultaneous effort to get the more favourably placed sections to reduce their current consumption somewhat by offering attractive terms to increase resources more over time. All incentives to 'save' are of this kind which ensures that assets or resources over time are increasing. So far the plan efforts have been only to increase (at best) the current consumption or current income (so low indeed that such current incomes coincide with current consumption) of the poorer sections. Over time, consequently the resource position of the favourably placed sections improves while the poor are left more or less where they have always been. Of late some programmes involving transfer of resources have been tried out to help the "weaker sections", and the evidence has been, as the Plan document itself admits, that such resources (credit and milch cows for instance) have tended to go to the stronger ones among the weaker sections. This is something of the law of development, not the law of development per se, but the law of development in a socio-economic system like others where the ownership of resources is primarily private and extremely unequally distributed and where resources are used mainly to augment resources further for those who have some to begin with.

The problem, however, is not about the ownership and accumulation of resources alone. One of our plan documents had referred to the problem of product-mix and technology-mix in our economy both of which are derivatives of the resource ownership pattern. The goods that are produced in a system like ours will be those that are demanded by those who can afford to purchase them and notwithstanding proclamations to the contrary, planned economic development in our country has obeyed the demand patterns of those who are favourably palced-witness the vast variety and quantity of consumer goods, especially consumer durables that are being churned out day by day by our economic system which has received a new dynamism as a result of the planning process. Of course, there has been a substantial increase in basic consumer goods also—food, for instance. But the technology-mix has been such (again dictated by the resource ownership pattern) that vast numbers of our people, who do not have anything other than their labour to call as resource, find themselves excluded from the production process so that they have no access to these goods. The Sixth Plan document does not speak about the problem of the product-mix or technology-mix but there is a quiet admission of the problem in the targets for food grains. The basic food grains of the more favourably placed, rice and wheat are projected to increase from 51.24 million tonnes and 35.64 million tonnes respectively in 1979-80 to 63.00 million tonnes and 44.00 million tonnes respectively in 1984-85, but there is virtually no increase postulated in the 'inferior' cereals which constitute the poor person's diet—jowar from 10.88 million tonnes to 12.00 million tonnes, bajra from 5.28 million tonnes to 5.80 million tonnes, maize from 6.23 million tonnes to 6.80 million tonnes, ragi from 2.85 million tonnes to 2.70 million tonnes, and small millets from 1.83 million tonnes to 1.90 million tonnes. Let the facts speak for themselves.

Promises and Programmes

If these sets of issues are the crux of the problem of social justice in our context, the Sixth Plan suggests no new way of dealing with it. Its wide range of programmes referred to earlier can only be thought of as "more of the same" as compared with promises and programmes of the past plans.

It can be argued, and with some justification, that a Planning Commission has no mandate to alter "the basic structure of the economy" and hence can produce a plan only within well defined parameters. A treatment of that basic issue must be taken up separately. However, in relation to social justice there is one more aspect that needs to be touched upon and that too is related to the basic structure of the economy. If social justice is defined as improving the living standards of the poorest sections in society, one of the major factors militating against it today is inflation which has been improverishing not only the poorest sections, but indeed the vast majority of people in our land. But inflation has one thing in common with what the Plan document described as the development process". Like the development process itself inflation too benefits "the more favourably placed sections" of society, except that the benefits of inflation go to even a smaller group than those of our kind of "development process". As this feature of inflation also is related to "the basic stucture of the economy" the Planning Commission may not be in a position to deal with it effectively.

But the Planning Commission has, in no uncertain terms, pronounced itself against inflation, just as it has pronounced itself against poverty and unemployment as also against all conceivable forms of economic vice. "A major task of economic policy in the Sixth Plan would be to create the necessary conditions for the mobilisation of resources in a non-inflationary manner. Inflation is the most regressive form of taxation". These are the words of the Commission's Deputy Chairman (who is also the Minister for Planning) in his Preface to the Sixth Plan document. "The control of inflation and generation of stable price expectations are crucial for a successful implementation of the Plan" adds the text of the Plan document.

Containing Inflation

Is this likely to happen, however ? We cannot be sure because the effective control of inflation depends on many factors not all of which are within the purview of the Planning Commission. But the evidence that we have is that the Plan is not likely to contribute towards the control of inflation, and may in fact contribute towards its further aggravation. One of the major contentions of the Plan document is that the ratio of tax revenues to the country's national income has now reached the level of 20 per cent, and that, therefore, the scope for raising additional revenues through mere changes in tax rates is rather limited. The Commission has also prescribed an outer limit of Rs. 5,000 crores for deficit financing out of a total public outlay of Rs. 97,500 crores over the Plan period adding "increase in deficit financing must be scrupulously avoided". But the deficit of the Central Government in 1980-81 the first year of the Sixth Plan turned out to be more than Rs. 2,000 crores and there is no reason to believe that it will be any less in 1981-82 either. Thus during the first two years of the Sixth Plan the extent of deficit financing is likely to be well over Rs. 4,000 crores as against the Rs. 5,000 crores "planned" for the full five year period. It is difficult to see how this can fail to fuel the already high rate of inflation which is impoverishing the many (including the not so poor) but conferring benefits to a few who are favourably placed to take full advantage of the inflation to strengthen their asset position.

Here again, the Planning Commission can take the view that it can only make recommendations to the Central and State Governments that increase in deficit financing must be scrupulously avoided, and that it has no power to implement the Plan. The Government can take the view that they too have to operate within well defined structures. But power, in our democratic set up belongs not to the Planning Commission, or to the Governments or to the political parties. It belongs to the people at large. It is for them to see how a plan of action that effectively ensures social justice is thought out and implemented. ☐

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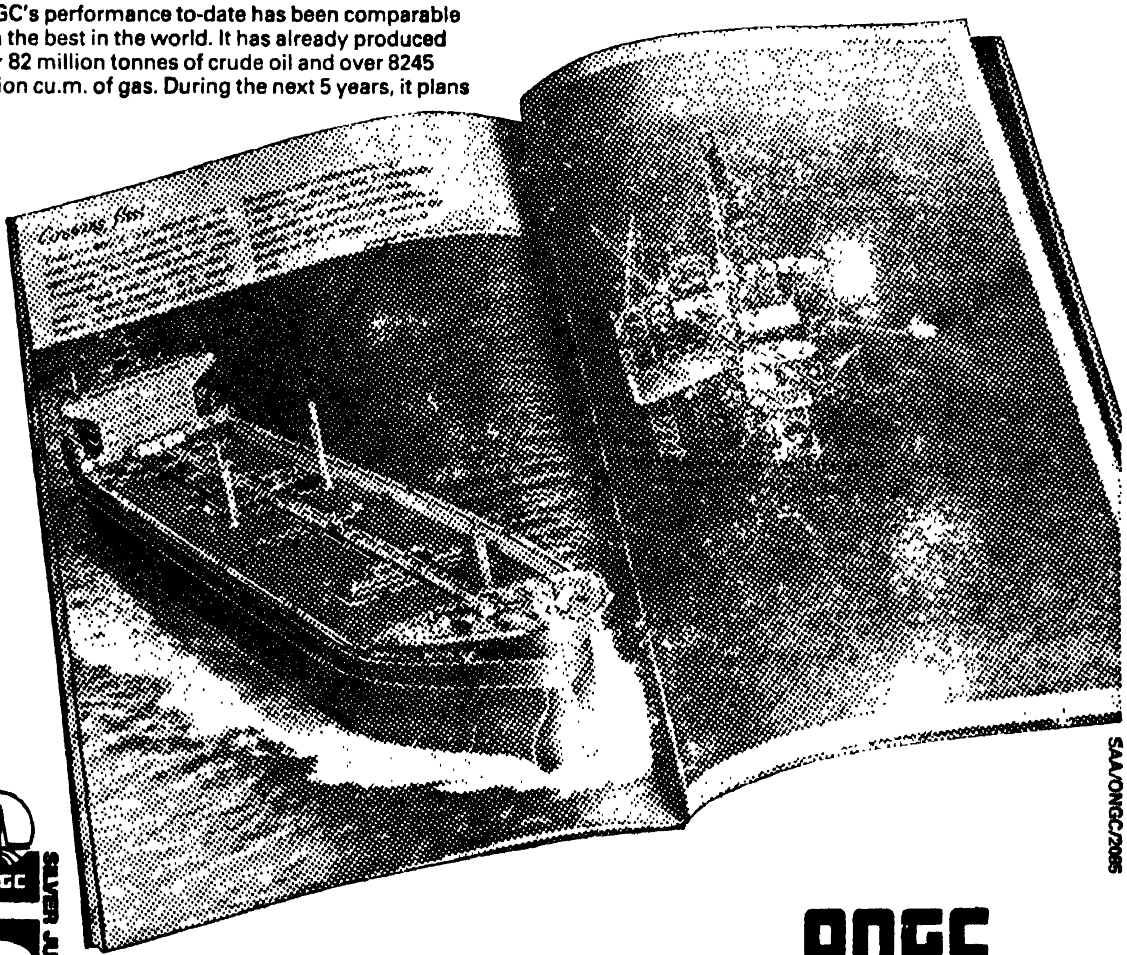

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Special Article

Development of Backward Areas

B. Sivaraman

REGIONAL imbalance in growth in this country with its vast diversities in society can create division trends against the needed unity. Bringing the backward areas within the general growth has always been in the background of planning even though emphasis has been placed on the general development of backward areas clearly only in the Sixth Plan document. Till now the plans emphasised developing areas with particular types of backwardness like Tribal Areas and Drought Prone Areas. Whilst the sentiment is laudable, for planning growth it is not enough to know that an area is backward. Unless we can define the backwardness in greater detail for a comprehensive plan of attack on the reasons for the backwardness, and towards growth, sentimental general approaches only lead to the rich getting richer and the poor poorer.

An exercise was done during the Fifth Plan to identify backward areas in the country. Various indices were accepted as signs of backwardness and a comprehensive index was developed out of the individual indices to identify a backward district. The resultant classification was prima facie untenable because backward areas got left out and known forward areas were shown backward. The index method also suffered from the basic defect that most indices were secondary indices dependent on more than one primary index and the indices were not independent of each other. Another difficulty was that the statistical base for district level indices which is reasonably sound at that level had not yet developed.

A bird's eye view of known backward areas will show that a district is too large an area for classifying backwardness. If the area demarcated includes forward areas also, the resultant development from a planned approach will deviate towards the more developed areas within the classified region. Given the administrative capacity as it today in the field, a block is the smallest area one can handle in planning and implementation. The National Committee on the Development of Backward Areas has suggested a block approach.

What is a Backward Area ?

What is a backward area ? Do we mean an area which has no potential for growth, or an area with potential which has not yet been developed ? If the former, clearly there can be no development of the area ; we can only find alternate areas for giving an economy to the people of the area as in migration for labour. When we talk of development of backward areas, we obviously mean the latter. If so, one has to ponder why an area with potential is remaining backward. There must be something inherently regressive to development in the people of the area or their society or the environment. Previous attempts at development of backward areas were based on this premise. Attempts were made to identify such fundamental regressives to growth. The drought prone areas programme which originally started as a programme for finding employment for the local people in a year of drought when agricultural labour opportunities were lost, gradually assumed the frame of an area development programme with special attention to the poorer sections. The tribal development programme, started to supplement the plan with specific economic programmes for the uplift of the tribals, in the areas with a tribal majority, has now developed into a Sub-plan approach dealing with the area development in a comprehensive way with special attention to tribals. The hill area development programme kept to some specific programmes of hill development and did not attempt a hill area development. The desert development programme was a late starter, with many special features. Over the Fourth and the Fifth Plans, all these programmes got a boost and a continuous attempt was made to identify the regressives and improve growth.

Various studies made of the actual impact of the various area development programmes above, reported that somehow we were not getting to the root of the matter regarding the regressives to growth. While there was general agreement that the various programmes have been designed, each to attack a particular form of fundamntal backwardness, it was felt that area development in each of the programmes was not progressing fast enough. The Planning Commission, therefore, formed the National Committee on the Development of Backward Areas to look into the programmes and find out how far we are achieving our objective and how we can improve the performance. Further the Committee was asked to define a methodology by which backward areas can be identified. The Committee in its first report which deals with "Organisation of Administration and Financial Structure for Backward Areas Development" has suggested that in the present state of our statistical base and the need for going down to the block for specifying backward areas, the Index Method being tried by the econometricians will not work. The errors are too glaring. Further a mathematical approach does not pay attention to the local conditions which lead to the regressives to growth. They have recommended that our approach being to tackle the basic problems which are standing in the way of development of an area, we must classify areas according to the fundamental factors which cause the regressiveness. On this principle the Committee has accepted that each of the programmes mentioned above deals with a unique fundamental regressive and needs special attention. In addition the Committee has suggested that coastal

Chairman, National Committee on the Development of Backward Areas, Planning Commission.

saline areas and chronic flood affected areas also exhibit a unique regressive trend and need attention. Discussions held by the Committee with the States have not so far revealed any other unique fundamental regressive to growth which can be clearly identified.

Six Types of Backwardness

Six types of fundamental backwardness have been identified so far. In the drought prone areas and the desert areas the major constraint is low and erratic rainfall. The environmental factor is the main retardant to growth or investment. In the Hill areas, the main difficulty is the nature of the terrain and distance from the main economic centres. In coastal saline areas, the environmental retardant of saline soils and saline water is the controlling factor. In chronic flood affected areas, the recurring hazard of the agricultural effort being washed off by the flood, retards growth and investment. On the other hand, in the tribal area which may fall under any of the five classes mentioned above, the basic factor of the tribal's unwillingness to enter the new economic system or his inability is the first hazard to overcome before we can even think of other retardants. In addition to the main retardant, in each of these areas there will be secondary and teritary retardants which can be identified only by a close examination of the local problems. Many problems will turn out to be extremely location specific. The strategy of growth identified for each area will have to take note of the main and subsidiary retardants. The National Committee has suggested an examination of the problem at the block level by local planning within the frame of the overall plan of growth. It may be found that the overall macro plan itself will need adjustment and amendment in the light of the local imperatives. One may well ask whether there is any strategy to answer the basic problem of low and erratic rainfall and the salinity of soil and water. How can we prevent floods ?

The teeming millions of humans have survived so far by conquering adverse environment. The dialogue across the countries, started by the Paddock brothers in the mid-sixties in America brought out the need for the rapid increase of productivity in food for the World's consumption. Paradoxically about the same time the affluent of the world including Russia started opting for a larger and larger meat diet to get which they had to preempt per individual five times the amount of grain a consumer of the poverty striken East required as a cereal diet, but did not get. Faced with this global maladjustment, India opted for a rapid change over to scientific agriculture and has since the mid-sixties, invested in a vast network of Research, Education and Extension in agriculture. For best land and water use both tradition and science agreed that a mixed farming approach was the best. From the early seventies the modernising trend was extended to animal husbandry, fisheries, forestry and optimum land and water use. Much has been done in these fields but much more needs to be done. The most important achievement from our angle is the research on dry farming and agro-meteorology which though in the beginning stages, yet have given a strategy for stabilising and improving overall productivity in thee drought prone areas of the country. The All India Coordinated Research Project for Dry Land Agriculture and later the International Crop Research Insitute for the Semi-Arid Tropics, both located in Hyderabad and extending the former to 23 centres in the country and the latter into three different zones, are doing yeoman's work in this field. The former further has an inbuilt operational research and extension franchise at all its centres. We have as of now a reasonably sound multi-disciplinary strategy for increasing overall productivity in most drought prone areas.

Soil Erosion—Major Calamity

In drought prone areas and particularly in desert areas, it is not only the low productivity which is alarming, but the deteriortion of the ecology by the over-exploitation of the land and flora. Soil erosion is a major calamity. The National Commission on Agriculture in its report on 'Desert Development' has explained fully the strategy evolved to stabilise the ecology first before trying to increase productivity. Many of the solutions will apply equally to badly drought affected areas. Watershed management for all areas which are cultivated or exploited, soil conservation measures on a watershed basis where the ecological damage is already serious, and rapidly increasing, are the main lines of attack. A pasture and animal husbandry economy on marginal lands and lands unfit for crop raising has been suggested. In the deserts, sand dune stabilisation, afforestation with emphasis on shelter belts, has been recommended. The most important aspect the National Commission on Agriculture has pointed out is the need in these low rainfall areas to try and bring in irrigation waters from the better endowed catchments in the country. There is not much of science in most of these methods but sheer extension work, extending available knowledge to the field and undertaking coordinated area development programmes of infrastructure and people's participation. The gravest lack so far has been a coordinated administrative structure with sufficient autonomy and financial freedom to organise and get such programmes done.

Certainly in desert areas, and wherever possible in drought prone areas and invariably in coastal saline areas, induction of fresh water from other catchments should be a national priority. Without this support for the stabilisation of these backward areas, it is almost impossible to call a halt to the ecological deterioration improve the base and increase productivity. A study in identifying surplus catchments and evolve a scheme or schemes for diverting the surpluses first to augment water resources in drought prone areas has been going on under the control of the Central Water Commission. Unfortunately the interstate quarrels on division of waters from inter-state rivers without a visible solution for more than thirty years, is a bad deterrant to growth. The theory of diversion of waters from surplus basins to deficit ones has to cross one more hurdle because so far we have been overawed with problem of intrabasin transfer itself. The Bhakra irrigation system is the sole example so far in the country where there has been agreement on inter-basin transfer but as if to show that such a reasonable attitude is against our grain, we already hear grumblings in Punjab and Haryana in maintaining amity. A lack of national will is a dangerous portent.

Developing Backward Areas

Development of backward areas has to be by the people inhabiting the area. Otherwise whilst the area may be developed by outside entrepreneurship, the people of the area who are behind in their economy will find their sources of income preempted by the new-comers for different types of exploitation and like the Red Indians of America be elimimnated by the sheer force of economics. We have enough examples of this in the world in the development going on in South American countries like Brazil. Who are the people in the backward areas ? Being ecologically difficult areas historically these have been the refuge of the people pushed out by other aggressive people to more and more backward regions. The tradition of area development they carried with them from the richer plains has with marginal modifications continued in their approach to area development, and use of land and water. Ploughing lands which should not be ploughed, seeking to grow grains which are hazardous in the area because of soil and water conditions, because this is the grain they are traditionally used to growing paddy in low rainfall areas, because it is the prestige grain and many other traditional habits has led to rapid ecological deterioration. There will be no change in the direction unless they can be taught better. Even if they are willing, unless required infrastructure development is done, the change cannot go through. Alternative arrangements for foodgrains marketing arrangements for taking off the new products foreign to the area, at remunerative prices, supplying the various inputs necessary to the change at the right time in the right amount and at a fair price, and giving the technical support and guidance through a pervasive decentralised technical organisation, are all essential factors. The Green Revolution has shown us that given an economic incentive the taditional farmer is not averse to change over to the new technology. What we need is the pervasive decentralised organisation that can ensure delivery of the package or services stated above, to the industrial farmer in the field. The National Committee on the Development of Backward Areas has explained the nature of the organisation in its report on 'Organisation of Administration and Financial Structure for Backward Areas Development'.

There are three human factors in backward areas which have to be tackled before we can get down to area development along with the development of the local population. In areas where tribal people predominate it is found that the tribals are not yet ready in many areas to enter into the new economic order. There is insular living and avoidance as far as possible of the contact of the other population which makes them unfit for development through an economic order based on money and profit. One has to wean them away from the insularity and get them to enter into the new economic order. This requires expert sociological handling of the change over. In the hill areas of the Himalayas we are faced with another type of human problem. Because the traditional economy of these areas did not provide enough sustenance to the people, the able-bodied adult males emigrated for employment opportunities to the plains. Thereby a remittance economy has developed on the one hand and on the other there are few able-bodied adult workers to engage in the development work. Any development has to be by the women of the household who are already overworked by their involvement in agriculture and household duties. An answer has to be found for this. In the hill areas and in the desert and semi-arid areas a nomadic culture has developed based on animal husbandry. This has been the response to the scarcity of natural fodder for the animals in all seasons near their original village habitat. Nomadism prevents scientific development of animal husbandry of the community. A programme of congregation at least in specific seasons has to be developed first before growth can ensue.

Structural Problems

There are two structural problems in land rights in backward areas which act as retardant to rapid development. In the North-East, land is owned not by the individual but by the tribal community. In Nagaland the village community owns all land and in other states and Union Territories where tribals predominate the district council owns the land. This is based on the old tribal control over the territory and the transfer of land. In Africa where generally the tribal base is ubiquitous many studies have shown that the system does not encourage individual enterprise and there is no overall development of agriculture. A way to clear the hurdle has to be found. Strangely in the rest of the country tradition has developed into community rights of village forests and village pastures. As a result, there is no control over the exploitation of these areas and hence we see in the backward areas complete exhaustion of the productivity of these areas leading to a rapid soil erosion and deterioration. On the other hand, today these lands if properly controlled and developed can bring back productivity and increase the fodder, fuelwood and timber available for the people of the village. The state has to control the individual easement rights in the interest of the people as a whole and ensure ecological rehabilitation through new technologies available for development of such areas.

Man has to learn to live with his environment Where the environment is adverse, man has learnt to adjust to the environment where he cannot ameliorate the environmental conditions. That is how backward areas have been populated and in some cases overpopulated. In coastal saline areas and in the chronic flood effected areas we are faced with a problem of hostile environment. Where salinity can be controlled by influx of fresh water from other areas, a solution is possible. Where it is not, man has to find methods of utilising the hostile environment for the best possible productivity. In chornic flood affected areas there is really very little that the inhabitants can do to control the floods. Even though many major rivers have been harnessed in the country, many of the Himalayan rivers cannot be controlled within our territory. Man has reacted to this problem by trying to protect himself from floods by embankments. Thishas resulted in reduction of the flood plains and consequent over-flooding. A balance has to be struck between embankment and flood plain. In the flood plain the greatest benefit that the farmer gets is the annual silting of his land. Thereby he saves a lot of fertiliser which people in other places have to use to get smaller productivity. The land again is extremely alluvial, the best agricultural land there is. He has only to learn to adjust to the flood season. He controls water more cheaply than those living in more difficult water areas. Whether in lift irrigation or ground water exploiation, the methods are cheaper than in other areas. All that has to be done is to add together the benefits and avoid the disasterous periods and plan a programme of cultivation and exploitation.

Multi-disciplinary Cover

Backward areas development is ultimately development of millions of small and marginal farmers and agricultural labour. Individually none of them are able to avail all to technological changes or the economic changes that are possible. There has to be mass effort. This mass effort cannot come from people's organisations. Our experiments there have failed. Some amount of governmental regimentation and support will be necessary for large mass operations. For this we want a eoherent multi-disciplinary and multi-organisational cover to the individual in the rural area. Hierarchical systems for efficiency of the system and coordinating levels for coordination activities for the overall good have to be designed. The National Committe on the Development of Backward Areas have dealt with this problem exhaustively in its report on "Organisation of Admministration and Financial Structure for Backward Areas Development". At present, such a system does not exist except in extremely limited backward areas.

The National Committee on the Development of Backward Areas have already issued comprehensive reports on "Development of Backward Hill Areas". "Village and Cottage Industries", and "Development of Tribal Areas". They will very soon be issuing reports on handling drought prone areas, coastal saline areas and chronic flood-affected areas. It is only by a coordinated and comprehensive attack on area development and human development that backward area development can take place. Haphazard attempt is ultimately selfdefeating.

Sixth Plan and Unemployment

B. M. Bhatia*

IN the earlier phases of planning in India, it was believed that the answer to the twin evils of poverty and unemployment lay in rapid economic development of the country. A sustained high growth rate of the economy over a number of years, it was thought, would not only raise incomes but also generate sufficient number of new job opportunities for the unemployed to get absorbed in production and remunerative work. It was deemed necessary, therefore, to have a separate employment policy forming a distinct part of a five year plan. Experience has shown that this was an erroneous approach and that the problems of poverty and unemployment were so massive in the country that their solution could not be left to the care of overall growth of the economy, because the process in that case would be so delayed and painful that it becomes socially unacceptable. Since the fourth Five Year Plan, therefore, progressive reduction of unemployment has come to be accepted as one of the objectives of planning in the country. Thus, "One of the principal objectives of the Sixth Five Year Plan", says the Plan document, "is the progressive reduction of unemployment in the country (Sixth Five Year Plan, p. 203)" Even a fairly high growth rate over the Plan period will not by itself achieve that objective, for in the words of the Plan document "our analysis shows that within the feasible range of growth of between 5 and 5.5 per cent per annum in gross domestic product, any significant reduction of unemployment and under-employment will require a choice of appropriate composition of sectors and techiques which generate more employment without affecting adversely the growth in productivity" and further, "since there are limits to securing additional employment through this method, it will be necessary to adopt specific employment geneation scheme." (Sixth Five Year Plan, p. 24) Accordingly, the growth strategy of the Plan and specific employment generating programmes and policy measures contained in the Plan framework have been so devised as to result in a net growth rate of employment, measures in standard person years, of 3.4 per cent per annum compared to the estimated 2.4 per cent growth rate of labour force in the Plan period.

Magnitude of Unemployment

The Draft Five Year Plan (1978—83) document estimated that in March 1978 unemployment in India was 20.6 million person years, 16.5 million in rural areas and 4.1 million in the urban areas. The rate of unemployment in 1972-73 measures as the rate of person years available turned out to be 8.2 per cent in the rural areas and 9 per cent in the urban areas.

The Sixth Five Year Plan puts the number of "daily status" unemployed in the age group of 5 and above in March 1980 at 20.74 million out of the total labour force of 268.05 million. The rate of unemployment works out at 7.7 per cent over the five years period. from 1980 to 1985, labour force is projected to grow from 268.05 million to 302.29 million or an annual rate of 2.43 per cent. The addition to labour force in five year period will thus be 34.24 million. The backlog of unemployed available in March 1980 is estimated at 12.02 million. A total of 46.26 million jobs have to be created to wipe out the backlog of unemployment completely and absorb fully the net addition to labour force during the Plan period. The backlog here takes note of only the long term unemployment; in addition there would be seasonal unemployment and partime unemployment prevalent largely in labour households. The backlog of total unemployment would therefore be somewhat higher. Against that, however, is to be put the extension of educational facilities proposed during the plan period. The use of these facilities by children now counted as part of the unemployment backlog would reduce correspondingly the size of that backlog. Even so, the magnitude of the unemployment problem is such that special efforts would be needed, spread over a period of two or three five year plans, to wipe out the backlog completely and also absorb simultaneously the new entrants to the labour force during the period.

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According to planners' estimates, at the present level growth, the organised sector can provide only four to five million regular additional jobs in the course of the sixth plan. We have to look to agriculture, small scale sector and other unorganized economic activities for absorbing the surplus labour force in gainful work. According to plan document as a long term strategy we may rely upon the secondary and tertiary sectors for sustaining greater labour absorption, appropriate measures are essential in order to mitigate distress resulting from conditions of unemployment and under employment. (p 206)

Within the overall unemployment situation in the country, unemployment among educated youth constitutes a serious problem by itself. Educated youth in age group of 15—29 and holding matriculation certificate and/or higher education certificates, diploma and degree formed 11.5 per cent of the corresponding age group labour force but accounted for 33.2 per cent share in the total unemployment. The rate of unemployment among those with secondary (matriculation) level was 21 per cent and those with graduation and above 26.97 per cent of the total number of the educated youth (15—29 years of age) in their respective categories. The unemployment among youth arises from the disequilibrium between growth of supply of educated youth in the country and growth of demand for its services The former depends on expansion of educational facilities and the latter is a function of the growth of economy, especially that of the industrial and tertiary sectors. It is obvious that expansion of higher education in the country has outpaced the growth in demand for the services of the educated youth. Inspite of this disequilibrium, rush to the colleges and universities for admission continues because many who would like to start working after secondary school find that neither they can get jobs nor are they fit for self-employment. They have, therefore, no alternative but to join the university though they may have no strong academic urge.

The total number of unemployed matriculates, graduates and above at the beginning of 1980 is estimated by the Planning Commission at 3.47 million. This number is likely to go up to 4.66 million by the end of the plan period in 1985. Even if the organised sector were to take up only educated youth for employment henceforth, large majority of the people in this category will remain unabsorbed in employment. The only hope for educated unemployed youth is a conscious effort at expansion of avenues for self-employment.

Employment Policy

A lasting solution of the unemployment problem can be found only in the framework of all round development of the economy at a rapid rate. The economic growth should not be from the top downwards in the form of establishment of a few heavy capital-intensive industries at the top. The pattern of growth based on industrialization may prove useful for a small-sized country with limited population but that type of growth, as is now being realised, can not solve the twin problems of endemic poverty and unemployment in a vast country like India. For a long time to come, the country has to look to agriculture and rural development to provide employment to the unemployed and under-employed in the rural areas and at the same time, to absorb the new entrants to the labour force.

The various programmes included in the Sixth Five year Plan are expected to generate new employment in terms of standard person—year equivalent to 34 million during the Plan period, raising the total employment from 151 million at the beginning of the plan period to 185 million at its end. The major employment generation programmes are : (1) The integrated Rural Development Programme, now extended to all development blocks in the country, aims at benefiting 3000 families in each block, thereby bringing 15 million families above poverty line by providing work opportunities to at least one member in a family ; (2) Operation Flood II would benefit and provide employment to another 8 million, basically milk producing, families while an additional 5 million families would get work under dary development schemes ; (3) Fish Farmer's Agencies will provide some additional employment to fisherman families by helping them to adopt modern agriculture techniques ; (4) The village and small Industries Sector is expected to make a major contribution of 9 million jobs in the Plan period under various schemes directed to development of Khadi and Village and Small Industries like handloom, handicrafts, silk etc. ; (5) The National Rural Employment programme which was previously known as Food-for-work-programme, would provide employment to landless rural labour during the slack agricultual season; additional employment of 300 to 400 million man days per year is expected from this programme during the plan period ; (6) a number of urban poor would find work opportunities when they are unemployed otherwise, in such welfare programmes to be undertaken as slum clearance, tree plantation, improvement of environmental sanitation, house construction for the economically poor etc.; (7) similarly various components of minimum needs programme in the rural areas such as supply of clear drinking water, health services, roads construction and extension of primary education facilities would open up new employment opportunities in rural areas ; (8) the National Scheme of Training Rural Youth for Self Employment aims at training 2 lakh rural youths in various skills to equip them for self employment ; and (9) under the plan programmes for scheduled castes and scheduled tribes, a wide variety of income earning occupations are proposed to be provided. It is also proposed to promote a balance between demand and supply of labour in different parts of the country by facilitating the transfer of labour from areas of relative plenty to areas of relative scarcity of labour.

These specific programmes of action to help target groups of unemployed and underemployed are all to be welcome. Much would depend on their implementation. These programmes, if properly implemented could make a considerable dent into the unemployment problem though by no means solve it completely. A New Deal is proposed to be provided in the form of extension of various facilities for promotion of self employment activities on the part of unemployed youth. This, in itself, should open up large avenues of employment both in the rural and urban areas.

Decentralized Development Strategy

While all these programmes are well-conceived and deserve to be welcomed, they do not amount to a well coordinated and comprehensive national employment policy. public sector plan outlays, howsoever large, cannot create conditions of full employment in a vast and populous country like India functioning under a mixed economy system. The whole development strategy has to be changed to achieve that result. The last section of the chapter on Manpower and Employment in the Plan document contains germs for formulation of a system of decentralized planning and economic growth. The programmes spelt out in this section do not add up to a well coordinated strategy of development or creating conditions of employment in which the entire labour force available in the country is harnessed in the useful national talk of economic development. But there is one idea in the section which if pursued effectively, can hold a great promise. The idea is that in the Sixth Plan period it is proposed to set up and organise in all districts of the country, a *District Manpower Planning and Employment Generation Council* which will contain representatives of the people, like local MLAs and MPs, suitable professional experts, representatives of voluntary welfare agencies, and functionaries of administrative departments. These councils will work out and implement employment generation programmes in their respective districts. If the scope of work of these councils were widened from employment creation to overall economic development with a view to absorbing the available manpower and other resources available in the district in effective development work and representatives of the people for whom the plans and programmes are ultimately meant were included in these councils, these bodies could become nucleous of not only a national employment plan but of an overall national plan of economic growth which is sufficiently decentralized to take care of the unemployed and the poor at the grass root level. Only a strategy of development based on decentralised planning and approach to development could provide an effective answer to the mass poverty and unemployment. Individual and disaggregated programmes of action in the matter can only provide palliatives but cannot remedy the situation substantially.

Now Huts are Insured in A.P.

V. Sripati Rao*

Andhra Pradesh is probably the first State in our country to provide insurance cover to hut dwellers on rather a large scale. The insurance scheme, as approved by the State Government, will cover all hut dwellers against the damages caused by fire, riots, malicious damages, earth quake, cyclone or storm.

Every year, on account of severe summer and intense heat hundreds and thousands of huts and even houses are gutted in Vijayawada, Guntur, Bhadrachalam, Kothagudem, Ramagundam and other towns. Government, of course, provides some relief, but then it is only a partial. In the same way fishermen and other labour, living in the low lying areas along the coast line, from Nellore down to Bhemunipatnam in the North of Andhra, face rather a similar devastation due to heavy floods, and speedy storms, almost every year.

The insurance scheme covers areas in certain districts like Warangal, Khammam, Kurnool, Cuddapah, Guntur, Krishan and Srikakulam. The scheme, of course, will be extended to other districts also. According to the scheme the hut dweller will insure his hut for Rs. 2000 covering all the risks, and Government will advance the premium to be paid to the insurance company. The Government would pay half the premium money and the remaining half will be paid by the owner of the hut. In case of fire and other damages the insurance company will pay Rs. 1000 immediately to the hut dweller, and the remaining Rs. 1000 will be deposited in his name, as seed money which will be advanced to him for constructing a better house. Revenue authorities in the specified municipalities will implement this scheme in co-ordination with the insurance agency.

More than ten lakhs of hut dwellers, living in specified Municipal areas, will come under the fold of insurance cover. ☐

Senior Coal Scientist Award

Dr. P. N. Mukherjee, Deputy Director, Central Fuel Research Institute and Dr. D. Chandra, Professor, Department of Applied Goelogy, Indian School of Mines, Dhanbad have been jointly selected for the Senior Coal Scientist Award 1980.

Dr. P. N. Mukherjee has more than 70 research papers and 6 patents to his credit. His significant contributions relate to the findings such as the importance of moisture which is held in coal by chemical forces and the active sites responsible for retention of moisture and the functional groups such as hydroxyl and sarboxyl. Dr. Mukherjee's work on preparation of fertilizers from coal by the reaction of coal and oxygen in a slurry of ammonical liquor and oxidation of lignite by dilute nitric acid are some of the processes available for production of novel coal fertilisers.

Dr. D. Chandra has made pioneering studies on the optical properties of coal and different forms of coal. He developed a technique by which the quality of coal lying at a greater depth could be predicted from the outer sample. This has immensely helped the coal industry throughout the world to save considerable expenses on drilling during early prospecting of coal. He is the author of more than 50 scientific articles published in International Journals.

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*Our Senior Correspondent Hyderabad:

A Saga of Ship Building Cochin Shipyard Ltd.

C. S. Pillai*

Cover Photos

Rani Padmini, the largest Indian built ship and the first Ship-built by Cochin Shipyard—a 75,000 DWT Bulk Carrier—for the Shipping Corporation of India.

Cochin Shipyard, a general view. In the background is the 150 T Crane, the largest of its kind in India.

COCHIN Shipyard's first ship and the largest Indian built ship "MV Rani Padmini" joined the Nation's fleet of Merchant vessels on 24 July 1981 when she was handed over to the Shipping Corporation of India. She is the biggest ship ever built in India.

Rani Padmini is of fully welded steel construction. Alternate cargo holds are specially strengthened for heavy cargoes like ore. Her principal dimensions are :- -length overall 245—364 m; breadth mid 32.207 m; depth moulded to upper deck 18.745 m; loaded summer draught 13.828 m. The vessel is provided with fully air-conditioned accommodation for 64 persons. There is a swimming pool on bridge deck. The wheel house and chart room are in the top most tier and are equipped with most modern navigational equipment. At full load she is capable of attaining a speed of 15.85 knots.

The Saga of Indian Shipbuilding has undergone marked changes during the last five years. As far as shipbuilding in Cochin is concerned, the industry has emerged seemingly very well suited to the expected demands. Its order book is full for the next five years. The shipbuilding and the repair yard in Cochin is amongst the most modern of its kind in the east of Suez. The shipbuilding dock is very well equipped and geared to build ships possessing genuine market appeal. Labour force of the yard is trimmed very much to realistic levels and the yard aims at a productivity level, comparable with those of major shipbuilding centres of the world. The aim of the yard is to possess a profitable and established shipbuilding capability. Main facilities in Cochin Building Dock are sized for construction of bulk carriers upto 85,000 DWT and in the repair dock, to be capable of docking in vessels upto 1,00,000 DWT. Straddled by a colossal goliath crane, the building dock is supported by ship facilities designed for a through put of about 25,000 T per annum. At optimum level of production this yard will turn out two new ships a year of size 75,000 DWT and will be able to handle a total of 1 million GRT of ship repair.

Some of the special achievements made by the Shipyard over the shipbuilding practices in the other Indian Shipyards are as follows :—

1. Line heating

Line heating is a method of forming steel plates and sections for final finishing of most complicated three dimensional shapes. This practice is in use in Japanese Shipyards and calls for development of exclusive empirical formula. The main advantage is that this process help to dispense with special machineries and costly equipment. The empirical formula for forming specialised units has been developed by CSL Engineers.

2. Modular Construction

Adaptation of modular construction both for accommodation units and for piping modules is aimed at saving time and is being practised from the second ship onwards. This has been highly acclaimed by other shipyards in the country.

3. Side Welding process for panel welding

The one side welding machine in use in Cochin Shipyard is unique and this practice has been introduced in shipbuilding in India for the first time. This will not only save welding time, but also eliminate inconvenience and hazardous postures during welding.

4. Design of the tug

A wholly CSL developed design of 2000 BHP tug with 32 Bollard Pull and adopting nozzle rudder type has been used in the manufacture of the tug. The tug will serve the needs of the Cochin Port Trust also.

5. 35000 DWT and 45000 DWT designs

The Shipyard has prepared its own design for a medium size bulk carrier in the range of 35000 to 45000 DWT to the stage of model testing but in view of the demand for repeat construction of 75000 DWT Vessels, this new design is not being pursued at present.

It was in August 1967 that the Cabinet approved the proposal for establishing Cochin Shipyard Project with a building dock and a repair dock. The project was approved by the Cabinet in 1969 and a formal contract was concluded between Government of India and M/s. Mitsubishi Heavy Industries (MHI), Japan in 1970 covering technical co-operation in the construction of the yard.

A fully Government of India owned company was formed on 29th March 1972 and it took over the Project was started in April 1972 with the laying of its affairs is vested in a Board of Directors headed by a Chairman and Managing Director. Work on the Project was started in April 1972 with the laying of the foundation stone by the Prime Minister for the Hull Shop. The ship was floated out on January 28th 1980. After completion of work she underwent three sea trials for various tests. Project construction is expected to be completed by March 1982. By the time it is completed, the investment will be around Rs. 130 crores.

The Agreement with Scott Lithgrow Limited (of U.K.), who are consultants for shipbuilding, includes supply of design and drawings of 75,000 DWT Panamax type bulk carrier, training of Shipyard Engineers at their Shipyard in UK and positioning of consultants at Cochin.

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*Our Senior Correspondent, Trivandrium.

Ship repair

The repair dock in this yard was commissioned in February 1979 and has since then been regularly attracting ships, both Indian and foreign, for repairs. Cochin Shipyard has been undertaking on stream repairs of ships with a nucleus repair organisation set up in 1977-78. The proposals to go in for foreign collaboration to ensure the high quality and competitive ship repair service are under active consideration of the Government.

This shipyard will provide employment to about 2500 persons. Shipbuilding is an assembly industry and is expected to generate considerable employment through ancillary industries and sub-contracts. Thus, it fulfils not only the technological development needs of the country but also meets, to a sizeable extent, the unemployment situation in Kerala. The Shipyard's training school is one of the best equipped in this region and imparts a high level of training and skill which will be sought for by other Shipyards all over the world.

The Shipyard has the largest ship building and ship repair facilities in the country and is laid out on the modern and functional lines. It aims at a productivity of shipbuilding roughly three times the average in Indian shipyards and highest quality of workmanship. The long felt need for achieving self sufficiency in shipbuilding and ship repair has now been fulfilled. □

Books

Purchasing Experts

Purchasing Competence by B.K. Roy Chowdhury, Sterling Publishers, New Delhi, 1981. Pages 180 Price Rs. 60.00.

WITH the advancement of science and industrialization and its diversification many problems arise. The great strides in industrial technology as well as sophistication in machinery call for specialization in various fields. Materials management is a branch of industrialization which is becoming more and more complex.

Increase in productivity is directly related to the quality of industrial raw material and spares. A modern materials manager is required to possess detailed knowledge of specific nature of their functions in industry.

There is, undoubtedly a wealth of expensive and complicated literature on the subject in the industrialized Western countries. But in India these publications are either not readily available or are highly expensive. In the book under review the author has made an effort to bring to focus the complex nature of materials management. He has also tried to give a succinct and coherent account of its theory and practice.

The book is a collection of series of articles written earlier by the author on several aspects of the problem: purchasing management, purchasing strategies, importance of training in purchasing management, industrial engineering and its relation to purchasing management etc. All these earlier expositions have been re-edited with connecting links to transform them into a basic book for the purchasing experts in industry. It will serve a limited purpose as the material contained in it gives a glimpse of the complex nature of the subject.

E. P. Radhakrishnan

New Issue Market

New Issue Market and Finance for Industry in India by Dr. M. Y. Khan: Allied Publishers Pvt. Ltd, 1978; pages 149; Price Rs. 48.

THIS BOOK contains an empirical study of New Issue Market and Finance for Industry (NIM) in India. The study is divided into three inter-related aspects; the direct role of N.I.M. in company financing; its indirect role in the form of underwriting of issues of capital and the cost of capital. The period of study extends over 13 years, from 1961 to 1973. The main theme of the study is explained in chapters II, IV and VI.

Chapter II deals with the direct role of N.I.M. in India expressed as percentage of the increase in capital to the increase in net assets of the sample companies. The overall trend of growth has been unsatisfactory. The reason for this revealing delcine in the growth trend is stated to be the depressed state of industrial securities market which in turn is the result of Government policy in regard to the institutionalisation of individual savings into LIC, Pension plans, Provident Fund, etc. Here the author could add ignorance of individual investors in general about the securities market and stock exchange. One more very important reason has been inflation which has constantly been cutting into the savings of individual investors

For assessing the indirect role of NIM in industrial financing, the underwriting of new issues has been dealt in detail in Chapters II and III. Large industrial houses and the group companies find it easier to get these issues underwritten as compared to their counterparts having smaller issues and belonging to smaller industrial group. The study has also revealed that in India only underwriting facility is available almost to all industrial houses whereas the services of origination and distribution of new issues have not emerged in a significant manner.

The third part of the book relates to the overall cost of raising capital. The study has revealed that the costs of raising capital through new issues are almost standardised, irrespective of whether the issue is old or new, involving high risk-bearing securities or otherwise. In such a case, there is no point comparing costs to the total amount of money raised. The result will obviously be high costs in terms of small issues and vice versa. There is no doubt, the book is a new contribution to the area of finance and will be useful to students of fianance.

Usha Krishna

Deposit Mobilisation by Companies and Banks

G. Srinivasan*

CONTRARY to the widely speculated surmise that the deposit mobilisation drive of commercial banks would sustain some deceleration on account of the permission granted to public sector units to accept deposits effective from 1981-82 Union Budget, the fluctuation in the fortunes of commercial banks deposit accretion has not been alarming. The reason for commercial banks' ability to mobilise increased deposits is ascribed to the general creditworthiness of banks as opposed to companies though the latter could dangle lucrative interest rate to inveigle the public into lining up behind it. Public is discouraged in subscribing to company deposits due to a variety of reasons. These deposits carry an interest rate of 15 per cent per annum, as against more secure and liquid fixed deposits of the same three years duration with the banks carrying an interest rate of 10 per cent per annum. But depositor can always borrow from the bank on the security of fixed deposit by paying a little more interest whenever he is in need of money. The interest income upto Rs. 3000 per annum being tax exempt, for certain income brackets, the rate differential may however not be attractive enough to make up for the additional risk of company deposits. Besides, the liberalisation of credit policy announced in November, 1980 by the Reserve Bank of India in the form of withdrawal of incremental cash ratio that was in vogue since 1977, eased the resource position of the banks as they hardly found any difficulty in maintaining the statutory liquidity radio of 34 per cent and cash reserve ratio of six per cent that were prevalent, then.

Though no firm reliable figures are available as to how much deposits the public sector compaincs were able to amass by offering 15 per cent interest on their deposits since March this year and also the success of private sector's deposit mobilisation, there has been no slackness in the pace of commercial banks' deposit growth. A conservative estimate made by the RBI suggests that the aggregate amount of public deposits held by non-financial companies of the corporate sector as at end-March 1978 amounted to Rs. 685.5 crores, with public companies accounting for Rs. 641.8 crores and the balance Rs. 43.7 crores with the private companies. Moreover, there has been a steady decline in the number of private companies' acceptance of public deposits during the last few years. For instance, in 1977, 5828 companies accepted deposits and in 1979 the number of companies accepting deposits stood at 4998. In the coming years the banks may expect to garner more deposits, though the rate of interest they may be able to pay is likely to look unattractive to prospective depositors. This, however, does not detract the public from going to the banks as a reliable and stable sanctuary for their savings, as opposed to the shaky position of companies which may offer attractive interest rate today and wind up the whole show tomorrow to the consternation of depositors. The prospects for commercial banks' deposit accretion now appear rosy with the promulgation of mini-package by the Union Finance Minister on 11, July 1981. The Ordinance calling companies, banks, co-operative societies and partnership firms to repay deposits by account payee cheque or account payee draft made with them if they are Rs. 10,000 or more, designed with the express objective of obviating benami transactions in deposits, is likely to bring down competitive pace of public deposit accretion. To the extent that companies and the public must keep track of their flow of deposits, the commercial banks would gain some modest boost in their deposit growth, since they are considered the safe haven for savings.

The raising of the statutory liquidity ratio (SLR) by one per cent from 34 to 35 per cent and the increase in the cash reserve ratio (CRR) from six to seven per cent will constrain the banks to curtail their advances. This implies their deposit position to the extent would not get depleted, though the adverse impact it has on industry by fleecing credit to it is hardly a salutary situation, especially at a time when the corporate sector's credit needs are considerably heavy with no matching liquidity to back up its recovery activity.

However, these facile assumptions regarding a favourable climate for commercial banks' deposit mobilisation may go awry because of pervasive price inflation which scarcely shows any sign of slowdown and the Ordinance enhancing the Compulsory Deposit of persons in the higher income brackets. Though the objective behind this Ordinance is to rein in conspicuous consumption of this class of people, the rise in their compulsory deposit rates would leave them with less disposable income, which will tell upon their saving habits. Any dissaving of this higher income group is likely to lead to a perceptible fall in the country's saving ratio to national income, as it constitutes a considerable chunk of saving community.

Though the dependability of companies on banks shows of late some sign of reduction owing to their invitation of deposits from the public, the recent directive enjoining them to repay deposits of Rs. 10,000 or more would have a deleterious impact on the industry. As the public deposits mobilised by companies do come into their calculation of capital requirements when they approach commercial banks for credit needs, the repayment of deposit of Rs. 10,000 or more is likely to upset companies' production and cost calculations. The severity of their difficulty gets further heightened especially when viewed against the pronounced contraction in bank credit that obtains now, though the banks are flush with funds with borrowers maintaining discrete mum, despite their mounting credit needs.

PTI, Economic Division, New Delhi.

Banking sector sources note that the hike in SLR and CRR by one per cent will freeze about Rs. 800 crores—Rs. 400 crores in SLR and an equivalent sum under CRR—as the time and demand liabilities at present amount to Rs. 40,000 crores. The banks, as it were, have little leeway with 35 per cent SLR and seven per cent CRR and as much as 34 per cent to be lent to the priority sectors. This is bound to bruise the non-priority sector borrowers badly and render industrial revivial a hard task at a time when production has latterly shown some evident prick-up with the easing of infrastructural impediments.

If Chore Committee's recommendations setting limit to the quantum of bank credit for industry are implemented, the corporate sector's access to bank credit will be considerably curtailed, compelling it to raise resource either through public deposits or through issue of shares and debentures. But, already, Government measures in this regard have tended to reduce the relative glamour of public deposits to both companies and to depositors. When the James Raj Committe recommended the discontinuance of public deposits as a means of company finance, certain measures were undertaken to restrict their quantum. Accordingly, companies are not allowed to raise deposits for longer than three years' duration and cannot pay interest at a rate higher than 15 per cent per annum. The interest payable on deposits is tax deductible only to the extent of 85 per cent. Besides, companies are required to keep 10 per cent of the deposits maturing within one year in approved securities, carrying a low rate of interest. These restrictions curbed the ardour of companies to raise finance through public deposits to a greater extent.

As bank credit is also being curtailed to companies, they have to take recourse to the issue of debentures or deposits. As convertible debentures of growth companies have attracted the attention of investing public in recent months, it will be hard to raise finance through non-convertible debentures at 13.5 per cent. Even the convertible debentures may lose some of their lustre when the conversion attracts capital gains tax. Thus, in the coming years corporate sector is likely to be in for some severe liquidity crisis unless companies are permitted to pay higher interest rate both on non-convertible debentures as well as deposits. Alternatively, banks should alter their lending strategies substantially to offer term loans to the corporate sector, as they have a large semi permanent core in their deposits such as fixed deposits.

What is of considerable concern in the final analysis is that the restrictiveness in advances to corporate sector comes at a time when the existing deposit position of banks and future prospects remain favourable. Whereas aggregate deposits of scheduled commercial banks was up by Rs. 1,619 crores from 7, March to 19, June 1980, in the current year figures for the corresponding period show a rise of Rs. 2,220 crores, despite the fact that this rise has taken place in face of public deposit acceptance by both the public and private sectors in the country. As prospects for commercial banks' deposit mobilisation now seem bright, banks should loosen their restrictive conditions for advances and enable the corporate sector get over its financial stringency.

Summer Camps for Tribal Youth

THE leadership Training Programme for tribal boys and girls was organised by the Maharashtra Government, this summer at four physical education institutions. The programme aimed at developing leadership qualities and talents in sports and games in tribal youth. Two hundred tribal boys and 100 girls from different forest schools were coached in Indian and non-Indian games and facts about their physical capabilities ascertained during the month-long camps. It was revealed at the camps that the tribal boys and girls were endowed with better skills in games and sports than the non-tribals.

The State's Tribal Development Commissioner, Shri S. S. Tinaikar told newsmen in Bombay that the tribal youth excelled in running, high jump and other sports demanding stamina. They picked up physical activities and skills but were slow in developing mental attitudes or expressions.

Shri Tinaikar said that of the 300 students, the organisers selected 50 boys and girls who displayed leadership qualities. They would be given special training to enable them to coach tribal youth in forest schools.

State Government, he said, had decided to commission a full-fledged public school exclusively for tribals from the current academic year. It had also decided to construct hostels only for tribal boys and girls in a number of cities and towns where facilities for higher education and vocational education are available. The idea again was to provide homely environment for them in cities.

Special Article

Twentyfive Years of LIC

Navin Chandra Joshi*

THE Life Insurance Corporation of India came into being in 1956 through a special Act of Parliament. In 1981 the Corporation has completed 25 years of its existence.

One of the objectives of the LIC is the mobilisation of savings of the community through the sale of life insurance policies. The fund thus collected was Rs. 370 crores in September 1956 and it went up to Rs. 5,800 by March, 1980. The annual volume of life fund, has increased from Rs. 28 crores in 1956-57 to Rs. 700 crores in 1979-80. The total business of the LIC, was Rs. 1,220 crores in December 1965, (pre-nationalisation figure) and it has gone upto Rs. 25,380 crores in 1980.

The LIC is today one of the big investors of funds in this country. After assessing its requirements of funds for administrative expenses and other disbursements in respect of loans, claims, etc., it calculates the surplus available for investment. Investments of the LIC are governed by the statutory provisions embodied in the modified Section 27A of the Insurance Act, 1938, as made applicable to the LIC and the directives issued by the Government from time to time. The LIC has to invest 75 per cent of the funds available, in Central and State Government, Public Sector Undertakings and marketable securities. Upto 10 per cent the Corporation can invest in private sector. Amount advanced to policy holders by way of loan comes to 8 per cent. Upto 2 per cent of the funds can be spent on the purchase of immovable property. The remaining 5 per cent funds are in the form of funds not available for investment. As on March 31, 1980 the amount invested in various securities is quite impressive. To state electricity boards the LIC advanced Rs. 1,045 crores. The major avenues of other investments are electricity, housing, water supply and sewerage, land development, bank debentures, loans to industrial estates and financial corporations Investment in housing is channelised through several agencies including the state governments. Loans to the state governments for housing constitute a major part of the total funds utilised for housing by them. Such loans to state governments amounted to Rs. 349.04 crores while to apex cooperative societies including housing boards and other authorities aggregated to Rs. 436.37 crores. Loans by LIC for water supply were granted to a tune of Rs. 279.22 crores in respect of housing boards and Rs. 35.92 crores to zila parishads. LIC's investment in debentures of land development banks has been of the order of Rs. 232.08 crores. The corporate sector got Rs. 216.34 crores by way of loans and Rs. 314.77 crores by way of direct investment in shares and debentures.

LIC's help to small industry is indirect in the form of investment in state financial corporations, IDBI, etc., which grant loans to small and medium units. The total investment on this account has been to the tune of Rs. 150.11 crores. Loans have also been granted to industrial estates thereby helping the creation of the necessary units. The amount under this category has been Rs. 13.98 crores. State road transport corporations received advances for the first time in 1979-80 for purchase of vehicles, construction and renovation of bus depots, and meeting capital costs of other ancillary facilities Thus the total investment of the Corporation has been Rs. 5,390 crores which is indeed a staggering figure to be really proud of for any single organisation.

As for inter-sectoral investments, to date the LIC's investment in public sector is almost 75 per cent of its total funds. Further while the same has been falling in respect of the private sector, it is improving in the case of the cooperative sector. The following Table depicts sector-wise distribution over the years.

Table

Sectorwise Distribution of Investment

(Rs. in Crores)

Sector	1957	1966	1976	198
Public Sector	255.1	659.4	2328.0	3915.5
Cooperative Sector	5.5	5.1	359.8	602.1
Private Sector (Joint Sector Cos)		9.1	27.9	27.82
Others in Private Sector	69.1	176.8	336 6	742.25
Total	329 7	896.4	3052.3	5287.67

The Dark Side

While analysing LIC's performance one cannot ignore the issue of its organisational structure and cost of administration. This monolithic organisation has come in for sharp criticism because of its huge size and the consequent inefficiency in rendering service to policy holders. In recent times the huge cost of administration has also come to light even as the employees have been demanding further increases in emoluments and allowances.. The Government recently wanted to bring them at par with other public sector organisations but could not succeed and the employees continue to enjoy the highest emoluments and allowances which are quite disproportionate and an important cause of irritation to other similar organisations. And yet, efficiency in service has eroded. It is a pity that today a policy-holder does not get the kind of service and treatment which he is entitled to and which he would certainly get from any private sector organisation of a similar type. It is a further pity that even as the higher ups know of all inefficiencies, delays ad hardships faced by policy-holders, nothing has been done to remove them or to ameliorate the lot of policyholders. This monolithic organisation has also created a monolithic trade union of its employees which is a force to reckon with and the management just seems to be helpless whenever the union holds the public to ransom.

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* Senior Lecturer, Motilal Nehru College, New Delhi.

Reorganisation

Recently there has been a talk on splitting the Corporation into five regional and autonomous corporations so as to bring about a measure of decentralisation and through it efficiency in its working. The split is likely to come into force with effect from April 1, 1982 unless the Government bows down to the labour trouble that is likely to take place in the wake of the split. The Era Sezhiyan Committee which went into various aspects of LIC's working, had recommended division of the Corporation because competition between regional corporations would result in better deal to policy-holders. It would also gear up the monolithic organisation thriving on monopoly business.

Critics argue that at least initially the regional units are not likely to offer competitive premium rates and rebates and as such, the concept of autonomy and competition has little relevance. They point out that what the Coropration needs is ruthless decentralisation, not division into regional units. The present zonal and divisional offices can easily be dispensed with and their present functions handled at the branch level. The branches may be manned by senior persons so that all the work is done right there. It is also pointed out that splitting the organisation would cause inconvenience to policy-holders who are transferred as they would have to continue to pay premium to the unit from which they took their policies. This is not an insurmountable problem as some sort of liaison could be established among the regional units in such cases so that hardship is mitigated. The time is ripe for splitting the huge organisation into complete autonomous organisations so that the policy holders and the public are under no constant threat of strikes by employees who come under one banner and become a formidable force to tackle with. The past experience justifies the split.

It is also high time to set right the lop-sided stress on development and procurement of new business by the LIC. Today about 18 per cent of new policies lapse every year. It takes about a month in clearing a new proposal and policies are issued in another month. Besides, there are long delays in sanctioning loans and settling death and maturity claims. The number of outstanding claims was around 1.2 lakhs in 1979-80 and the amount involved is around Rs. 48.35 crores. Surely, this is not a happy situation and needs to be drastically remedied. Even as there is a separate policy-holders' servicing department in LIC offices, there is no advance intimation to policy-holders of premiums and interest payments on loans falling due. The practice of sending premium default notices or reminders of over-due premiums has also been discontinued. For the illiterate persons, getting certain formalities regarding loans, etc., becomes an uphill task and there is no one to help them out. All these defects are likely to be removed, given the will to do so, when the organisation is split and a kind of competitive spirit is inculcated in the five regional units. ☐

Environmental Protection in India

Dig Vijay Sinh*

THE importance of conservation of nature has played a very vital role in the history of India and it is perhaps Emperor Ashoka who created one of the first National Parks in world history.

The natural environment is the house in which we live comprising of air, water, soil, vegetation, insects, birds and animal life. How carefully we can conserve this balance of nature is what ecology is all about. Till today, we have taken all these assets for granted, and considered them as objects for us to exploit and utilise as much and as and when we liked. Actually it is only lately that we have realised how detrimental it will be if we do not take stock of the situation without thinking of the consequences. We have to nurture our planet for after all here is only one earth.

Out of all these natural endownments, first let us take soil into consideration. It is an organic nutrient which has taken millions of years to build up, perhaps one inch of top soil can take upto five hundred years to evolve and due to our carelessness we can lose it just in one flood. They say that around six thousand million tonnes of this precious commodity is annually lost by water erosion, the value of which is incalculable.

Land in Danger

It has been estimated that out of a total of 304 million hectares of land which comprises India, somewhere around 175 million hectares are in danger of degradation. Out of this, around 90 million hectares are in critical condition. As a result of this deprivation, our land has been laid bare, the water level has, gone down, reservoirs and deltars have been silted up and the climate has altered.

It is estimated that out of a declared area of 75 million hectares classified as forest land, less than half is under tree cover. Therefore, about 1 per cent of our country's land surface is actually under forest cover as against a target of 33 per cent prescribed in the National Forest Policy. Further more, although about 30 million hectares are classified as permanent pastures, in reality they are hopelessly overgrazed, encroached and eroded.

*Member of Parliament, Member, National Committee for Environmental Planning and Convenor of the Parliamentary Environmental Forum.

As far as wild life is concerned, the Indian subcontinent is endowed with perhaps the richest variety of living resources in the world. But the rising pressure of an exploding population, the unplanned development of the natural environment and the greater need to exploit this wild living resource, has resulted in the incalculable loss of our wild life heritage. Pristine forests almost do not exist in India and those that do exist have lost most of their wild-life. One can conservatively say that perhaps we have lost 90 per cent of our larger wild animals, 75 per cent of our smaller wild animals and sixty per cent of our game birds since independence. Although, we have a comprehensive wild life protection Act of 1972, it languishes because of the lack of public support.

Our Marine Eco-Systems have also been ravaged either because of the greater need to exploit our fish resources or to extract the off-shore coral resources around the coasts of India.

In all, we have only 19 National Parks and 202 wild life sanctuaries comprising an area of only 2.25 per cent of the geographical area of this country. It is imperative that these must be meticulously conserved and many more added to the years to come. The Bio-Sphere Reserves Project should also be implemented forthwith.

Although, it is imperative that industrialisation must develop to offer better living standards but alongside it, planning also has to be made with care and the ill-effects of water and air-pollution have to be considered. We cannot afford to be complacent and sit back saying that India is still a developing country and therefore does not encounter the same environmental problem as the developed world does. Actually, we have to learn from their experience and take precautionary measures whilst our country is in the process of industrial growth.

Creating Public Awareness

To checkmate this devastation, there can be no more effective step than to create public awareness. It is interesting to note that in certain developed countries like the USA, around two per cent of the entire population is affiliated to some society, organisation, institution or pressure groups which can influence government decisions as well as create concern in society at large. Our goal in India should be that if at least .1 per cent of the entire population is affiliated to such a movement, much of our problems would be solved.

Since January last year, certain very encouraging and progressive steps have been taken in India under the very able and knowledgeable guidance of our Prime Minister, Mrs. Indira Gandhi. To begin with, for the first time, the President of India in his address to both the Houses of Parliament on 24 January, 1980 spoke about the envoronment and its importance.

Thereafter, the Prime Minister constituted a special Committee to prepare a report for recommending legislative measures and creating the administrative machinery for ensuring environmental protection.

Challenging Time

The new Department of Environment is headed by the Prime Minister herself. The Department has a challenging time ahead. Amongst the important steps this new Department will have to take, are to evolve National Policies for Forests, Land Use, Oceans and Air. Environmental legislation, which is a new subject should also have to make progress for drafting laws concerning conservation of the environment and regulating the use of natural resources.

Development projects would have to be processed after making environmental impact studies and for this an infrastructure will have to be created for producing the technical manpower.

Each State in India has both an Environment Committee and the State Water and Air Pollution Control Board, which need to be activated and strengthened. More impoitantly, the functions of the eight Ministries of the Government of India which deal with the environment would have to work in consonance and in coordination not only with each other but with the Department of Environment so that a pattern is set for their effective functioning.

Environment Forum

The Prime Minister, Mrs. Gandhi inaugurated the Parliamentary Environment Forum in March this year of which there are 70 Members from both the Houses. I happened to be its convenor. The main purpose of this Forum is to get fully acquainted to cope with them, to highlight these issues on the floor of the House, to suggest legislative measures and to participate in their respective State Environment Committees and Water Pollution Control Boards. A decision has also been taken that similar Forums should be constituted in all State Legislatures. Such Legislative Environmental Fodums would then coordinate with the Parliamentary .

Forum

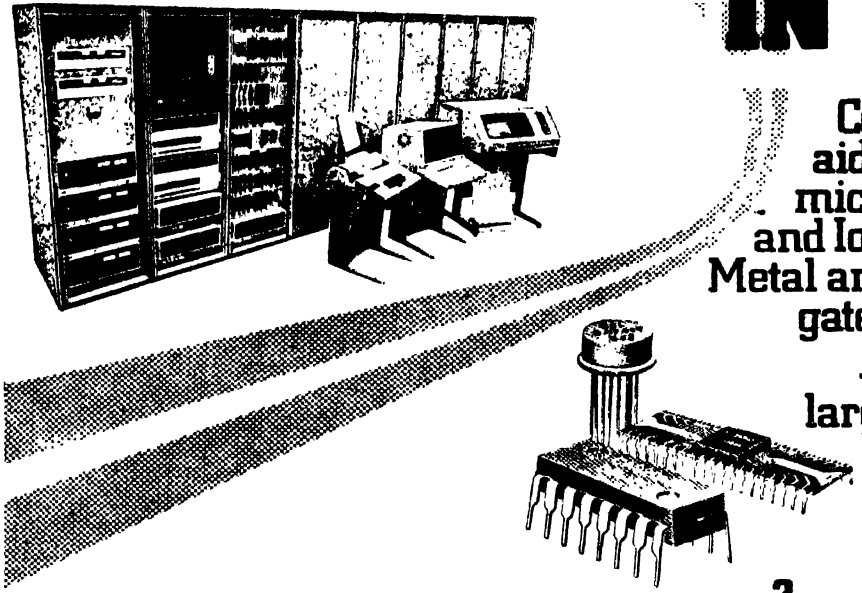
Finally, the stage of consciousness of a human society is evaluated by its capacity to think of the future and I feel confident that the Indian society with its remarkable cultural, social and political heritage will reach that stage of consciousness where it will take care of Mother Earth which has given us birth and in whose lap we are destined to live. ☐

Matador brings Silent Revolution

THE Panchayat Samiti of Udayanarayanpur Block of Howrah district has recently purchased a Matador Vehicle under I.R.D.P. at a cost of Rs. 86,000. Half of its cost was borne by the Government and the other half was received as loan from the local branch of United Commercial Bank. It has been reported that its running has been a profitable business and the Samiti had already started paying off instalments to the bank. On the other the vehicle is being hired by the local farmers almost daily for transporting their produce like Potato, Kumra etc. to the whole sale market at Champadanga and for fetching fertilisers, seeds etc. from distant parts of the State. It is hoped that the aquisition of the vehicle by the Samiti, which charges very reasonable rates from the farmers, will go a long way in developing the block economically.

Field Publicity Officer
Calcutta

BEL ENTERS LSI ER IN ICs



Computer-aided design, microlithography, and Ion Implantation, Metal and Silicon gate technology -leading to large scale integration.

Soon, BEL will bring you LOVAG, C^2L, and SOS ICs.

Since BEL pioneered commercial production of ICs in this country, the technology has become more advanced. ICs have now become more complex and much smaller in size. Thanks to the computer-aided design and other modern facilities, BEL could easily transcend to the new innovations in IC technology.

The new generation of IC technology calls for more sophisticated techniques and testing parameters BEL has now equipped itself with sophisticated facilities such as microlithography and Ion Implantation — which will enable BEL to produce microprocessors and other large scale ICs. And BEL has the capability to provide the most critical component for digital watches, the LSIs.

With these latest additions to bipolar and CMOS ICs, BEL is in the process of enlarging its current product range in ICs. At several stages of development are: BEL 7000 AM/FM radio IC, designed to give 1 watt power at 6V; type BEL 7001 for tape recorder applications, telephone dialler IC and PCM CODEC ICs and a number of new generation ICs.

The driving force behind BEL's leadership thrust has been its components capability. BEL's unique in-depth expertise in IC technology is only too well matched by its achievements in other component areas: receiving valves, transmitting tubes, X-ray tubes, cathode ray tubes, TV picture tubes, microwave tubes, passive vacuum devices, display devices, hybrid microcircuits, printed circuit boards, precision crystal filters and ceramic capacitors

These technological triumphs notwithstanding, it is BEL's state-of-the-art systems capability, as evidenced by its sophisticated systems and equipment that keeps India on the electronics map of the world.

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From Recovery to Growth

Contd. from page 3

On the whole, there is ground for moderate optimism regarding the second year of the Sixth Plan. There has been good monsoon; the Government has become more conscious of following realistic pricing policy regarding oil, fertilisers, etc; there is a rising trend in the indigenous production of oil, steel and cement, and there are better prospects of getting more foreign resources. If the Government could also take effective action against black money and hoarding of essential articles, the economy can certainly move from the stage of recovery to that of growth. □

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davp 81/95

Industrialisation in Andhra Pradesh : Promise and Potential

C. S. Venkata Ratnam and B. Appa Rao

ANDHRA PRADESH is poised for a further breakthrough in industrialisation. Though a late starter in industrial development it has made good achievements since its formation in 1956 but it still continues to be industrially backward. The number of large and medium scale industries in the state rose from 45 in 1956 to 353 by the beginning of 1979-80 and the small scale enterprises from 1,200 in 1956 to 22,000 in 1978-79. It now stands first among all the states in terms of industrial investment, which is around Rs. 6,400 crore, With the implementation of the Sixth Five Year Plan the investment will rise still further. This, coupled with its rich mineral and power resources and fully developed agriculture, offers an immense scope for the development of industries, particularly those based on minerals.

The State is estimated to have 409 million tonnes of coal deposits, 1,300 million tonnes of manganese, 60 million tonnes of barytes, 500 million tonnes of bauxite and 400 million tonnes of low grade iron ore. Besides being surplus in foodgrains this 'granary of the south' also produces such commercial crops as tobacco, cotton, sugarcane, groundnut and tamarind. Ninety five per cent of production of virginia tobacco in the country comes from this State. It is also the fifth largest producer of sugarcane with an average per hectare yield double the national average.

The State's outlay on organised industry and minerals increased from Rs. 0.61 crore during First Five Year Plan to Rs. 7.28 crore during Third Five Year Plan. Thereafter, it declined to Rs. 3.8 crore during the Annual Plans (1966—69) and further to Rs. 1.51 crore during Fourth Five Year Plan. Subsequently, it increased to Rs. 16.45 crore (Fifth Plan) and to Rs. 84.2 crode (Draft Plan 1978—82). However the share of outlay on arganised industry and minerals in the total plan had been less than 3 per cent throughout the plan period. The outlay on village and small scale industry also had been erratic and insignificant throughout the plan period. Whereas the total plan outlay of the State increased steadily from Rs. 64.23 crore during first plant to Rs. 2,933 crore during 1978—83, the cumulative average outlay on organised industry and minerals was a mere 2.2 per cent and that on village and small scale industry, braely 1.65 per cent. The gross neglect of industry, both large and small, in the state plan outlays is thus easily discernible. This is one of the main reasons for the persisting industrial backwardness of the State inspite of the apparently significant resource endowment and potential it enjoys for rapid strides in industrialisation.

Tenth Position

Andhra Pradesh ranks among the top ten industrialised states in the country. According to the data published by the Central Statistical Organisation (the annual survey of Industries 1976-77) though Andhra Pradesh obtained third rank in terms of number of factories registered (8450) constituting 10.8 per cent of the registered factories in India, in terms of persons employed (Rs. 5.62 lakhs, 8.66 per cent), fixed capital (Rs. 8.88 crore, 5.46 per cent) and working capital (Rs 308 crores, 4.46 per cent), its rank was 6th, 8th and 9th respectively. In terms of total output (Rs. 1,885 crore, 5.68 per cent) and value added (Rs. 370 crore, 5.18 per cent), its rank was seventh,

Large and Medium Scale Industries

The large and medium industrial unit in the State at the time of its formation in 1956 were 45 with an investment of Rs. 63 crore employing 99,000 persons. By the beginning 1979-80 of the number of these units rose to 353 with an investment of Rs. 1,200.41 crore providing employment to 2.58 lakh people.

The industrial activity in Andhra Pradesh is fairly diversified. Of the 353 units, 107 are agro-food based industries with an investment of Rs. 183.12 crores, employing 72,313 persons, 88 engineering and electri-

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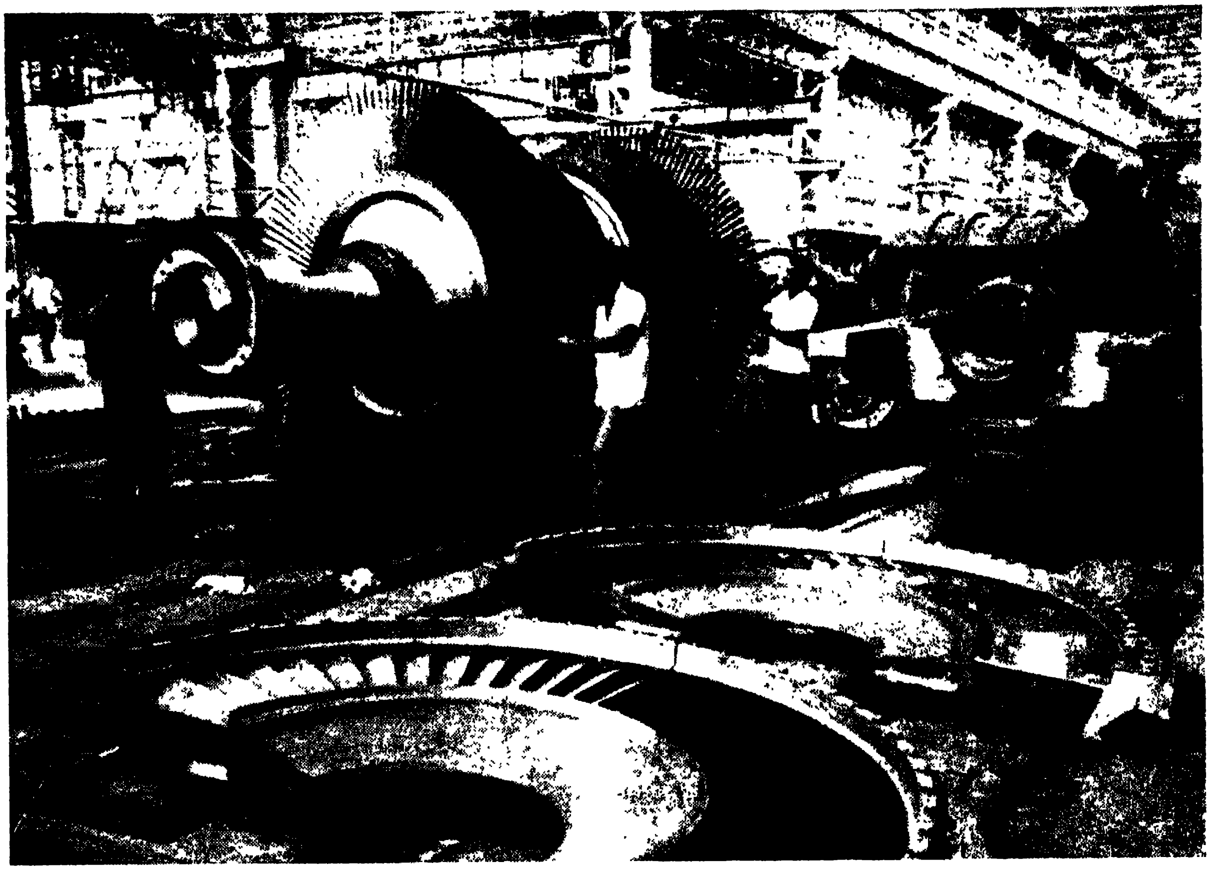
*Department of Commerce and Management Studies, Andhra University Waltair.



DELHI, Hyderabad, an inside view

cal units with an investment of Rs. 480.87 crore employing 69,202 person, 11 electronic units with an investment of Rs. 16.12 crore employing 7,661 persons, 50 chemicals units with an investment of Rs. 328,91 crores employing 23,459 persons 17 mineral-based units with an investment of Rs. 65.61 crore employing 73,563 persons, seven forest-bsed units with an investment of Rs. 112.77 lakh employing 10,820 persons and 13 units belonging to other categories with an investment of Rs. 12.73 crore employing 1,349 persons.

Small Scale Enterprise

Small enterprise also received a big boost in the State over the past quarter century. The number of small scale units increased nearly 20 times from 1,200 in 1956 to over 22.000 during 1978-79. The investment also increased sharply from Rs. 5 crore to Rs. 197.54 crore recording an increase of 39 times, and employment from 13,519 to 2,34,668 persons recording an 18 fold increase. These units manufacture over 1,160 products, with the agro processing ventures gradually yielding place to more sophisticated industries.

Regional Imbalances

A study of the district-wise distribution of the small scale and large and medium scale industries in the State would give a picture of glaring regional imbalances. Coastal Andhra with 2926 units and Telangana with 7619 accounted for nearly half of the units and for nearly third of investment and employment in small scale sector in the State.

In the case of medium and large industries, the main concentration with 172 units was in Telangana Region. This accounted for about 50 per cent of the units, 60 per cent of investment and over 66 per cent of employment of medium and large scale industries in the State. Coastal Andhra with 129 units accounted for about one-third the number of units and over one-fourth of investment and employment. The backwardness of Rayalaseema is thus palpable. Even within the developed regions, i.e., Telangana and Coastal Andhra inequitous growth is a striking phenomenon. The share of eight developed districts out of 22 districts in the State is more than half in respect of number of units, investment and employment in both small scale and medium and large scale industries. Hyderabad and Krishna districts with 5757 units account for more than one-fourth of the total number of units, investment and employment in small scale sector whereas Hyderabad and Visakhapatnam districts with 145 units account for over 40 per cent of the total number of units, 54 per cent of investment and about 40 per cent of employment in medium and large scale units.

Ancillary Industries

Most of the large and medium scale industries in the State foster ancillary industries for meeting their requirements of components, spares, prefabrications, etc. Under this programme, 127 ancillary industries have been developed in the State with an investment of Rs. 12 crore to manufacture 198 items out of 1,132 items identified so far. for which there is scope to be off-loaded to ancillaries. These ancillary industries provide employment to 1,124 persons and are catering to the needs of 14 large Industries and State owned APSRTC. The orders executed by these ancillary industries are estimated at Rs. 341.54 lakh. It is proposed to promote ancillaries in other large and medium scale industries in the State.

Industrial Estates Programme

Andhra Pradesh along with other States, launched the prgramme of Industrial Estates (IEs) in 1957. In 1974 all the existing IEs and Industrial Development Areas (IDAs) were transferred to the State-owned Andhra Pradesh Industrial Infrastructure Corporation . Upto 1974 only 44 IEs, 15 IDAs and a total of 332 plots and 495 sheds were constructed. These units provided employment to 14,000 persons and the value of their annual production was about Rs. 32 crore. By, 1979 the number of IEs and IDAs increased to 88 and 39 respectively with 351 plots and 528 sheds. They provided employment to about 2,000 persons.

Self and Special Employment Schemes

The State Government launched the self-employment programme in 1971-72. The main objective of the programme is to create job opportunities for educated unemployed and artisans. Due to sustained and concerted efforts of the Department of Industries this programme yielded good results. Till the end of March, 1980, 11,873 small scale units had been put on ground providing employment to 48,744 persons.

During 1978-79, the State Government launched a novel scheme, namely 'Special Employment Scheme' with the assistance of various Heads of Departments in the State. The Main aim is to provide employment opportunities to weaker sections in particular and to create job opportunities for the educated unemployed in setting up small scale industrial units, servicing units and business ventures by providing 20 per cent as government share of margin money as loan. Towards margin money, the amount of Rs. 15.75 lakh from the Industries Department and Rs. 79.79 lakh from the Social Welfare Department (20 per cent) were sanctioned for this programme during 1978-79. About 2,740 small scale industrial units and 3,000 business ventures were started by those belonging to Scheduled Castes/Tribes or backward classes in one year providing employment to 7450 persons and generating an investment of Rs. 375 lakh. The other important schemes include half a million job programmes, Rural Industries Development Programme and Training-cum-Employment Programme.

DIC Programme

The State has taken up the District Industries Centres (DIC) in quite earnest and has already set up 11 DICs during 1978-79 and 3 in 1979-80. The results achieved through these centres have been quite encouraging. So far, 3,556 prospective entrepreneurs have been identified through entrepreneure guidance cell created in each DIC out of which 1,948 small scale industries' registrations have been issued for manufacture of various types of products.

SETWIN

In addition to the DIC programme another special organisation SETWIN was created for providing gainful employment opportunities to the educated unemployed in old city area of Hyderabad, on 20th January, 1979. The main objective is to provide training to the educated unemployed in the field of air-conditioning, card-punching, plastic processing, watch repairing, leather garment making etc., specially identified with vast employment potential and bring self-employment opportunities. Under the SETWIN programme, 50 passenger buses worth Rs. 93.50 lakh have been given to 2,576 educated unemployed belonging to weaker sections during 1979-80. About 30 per cent of the small scale units in the state are identified as 'sick'. The government is planning to entrust some of these units to SETWIN for their rehabilitation.

Institutional Framework

During the last three decades several institutions such as Andhra Pradesh Industrial Development Corporation (APIDC), Andhra Pradesh State Financial Corporation (APSFC), Andhra Pradesh Small Scale Industries Development Corporation (APSSIDC), Andhra Pradesh Industrial Infrastructure Corporation (APIIC), Andhra Pradesh Scheduled Castes Co-operative Finance Corporation (APSCCFC), Andhra Pradesh Backward Classes Co-operative Finance Corporation (APBCCFC) and Leather Industries Development Corporation of Andhra Pradesh (LIDCAP) have been set up by the Government of Andhra Pradesh to promote industrial development in the State. The objective of all these institutions have been directed towards the same goal. However, their scope and operations were varied in nature.

As on 31st March, 1980 APIDC promoted 2,000 units in almost all parts of the State covering an investment of Rs. 747.43 crore, providing direct employment to 61,600 persons. These industries are in medium and large scale sector with investment ranging from Rs. 25 lakh to large projects involving investment of Rs. 50 crore.

Being a premier term lending institution to the small enterprise in the State, APSFC sanctioned Rs. 16,667 lakh for 10,380 units as on March 31, 1980. The APIIC is specially constituted by the State Government to play a catalytic role in providing infrastructure. Besides letting out of 1,512 sheds to industries so far, it has planned to build up another 1,500 sheds during the Sixth Plan.

Incentives

With a view to wiping out the prevailing regional economic imbalances, both the Central and State Governments offer several incentives for development of industries in the State, particularly in the backward areas. Fourteen Districts in the State with varied resources are eligible for Central Investment Subsidy and various fiscal and financial assistance of the financial institutions.

Some of the important incentives of the Central Government are Exemption from Wealth-tax, Central Investment Subsidy, Tax Subsidy, consultancy subsidy, import duty etc. The total subsidy reimbursed under central investment subsidy upto 1978-79 was Rs. 15,710.09 lakh. Of this, Andhra Pradesh got about 12 per cent.

The Government of Andhra Pradesh offers several incentives for the industries set up within the State during the past few years. They include investment subsidy, interest rate subsidy, interest free sales tax loan ; rebate on power charges ; rebate in power tarrifs, free developed plots ; price preference in marketing the products, and concessions regarding rate of interest. ☐

Wind Energy in M.P.

A. Jagadeesh, N. C. Varshaneya and G. Krishna Mohan*

THERE is awareness that ultimately all the essentials of life must flow from replinishable or recyclable processes. Many such processes involve technologies and we need substantial time before they are introductd. This means in the field of energy attention should be paid to sources that are continuous, non-pollutant, free in their availability and capable of early exploitation at favourable cost. Such attention is being given in our country with some urgency. With this view, we have undertaken a study on the potential of wind energy in Madhya Pradesh, the largest State in India.

Wind data

The only source of data on winds in the state is the Indian Meteorological Department. These data consist of (i) continuous wind speed records at Bhopal observatory, and (ii) daily mean speeds, hourly means at 0830 and 1730 hr. and the mean between these two hours, at 20 stations spread over the state. The stations at which and speed data are available are shown on the state map in Fig. 1. The monthly average wind speed at the stations are plotted in Fig 2(a), 2(b) and 2(c). From Fig. 2(a) we find that Indore and Bhopal experience wind speeds over 2.5 m/s during the south-west monsoon period while Guna and Ambikarpur experience wind above. 2.5 m/s from May to August. Wind energy can be exploited profitably at these stations during this period. From Fig. 2(b) it is evident that Khandwa and Nimach have wind speeds of over 2.5 m/s from April to September. The wind can be utilised to harness wind energy. From Fig. 2(c) we find that Sagar has wind velocities of over 2.5 m/s between April and October. Raipur and Ratlam experience wind speeds of over 2.5 m/s between May and August. Wind energy can be utilised profitably in the above stations during the period. The wind velocities in the rest of the stations are quite low and hence hardly any energy can be exploited.

The meteorological stations are often situated in the towns or cities, where the wind are strongly affected by the local terrain and the buildings, and may not give the correct wind speed prevailing in the region. As such the wind speeds in the rural areas of the state where there is more need to tap energy sources may be more.

In places where the winds are fairly good (for example Indore, Nimach, Khandwa, Raipur, Ratlam, Guna, Ambikapur and Bhopal) mostly dry crops are grown. Hence, wind energy will be most useful in these areas for irrigation.

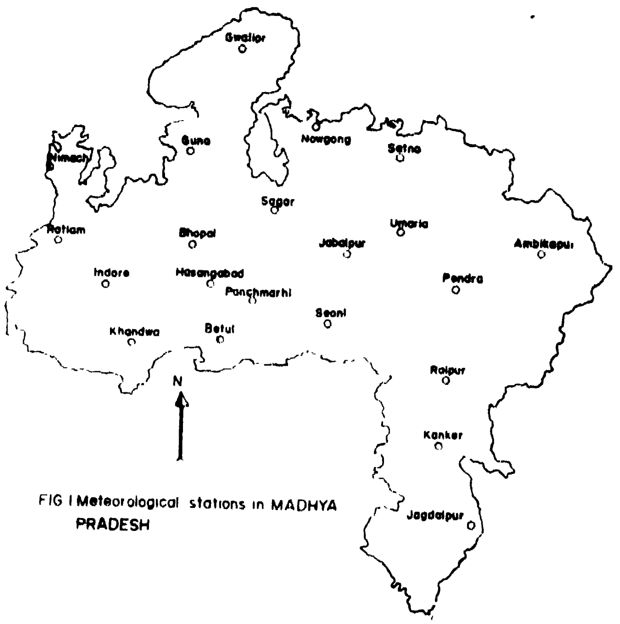


FIG I Meteorological stations in MADHYA PRADESH

Droughts have been occurring periodically due to the variability of south west monsoon from which 80 per cent of the annual rainfall is received during the period from June to September in most parts of the country. The districts identified as drought-prone areas in Madhya Pradesh are Jhabua, Dhai, Sidhi, Betul, Khargaon, and Shahdol. It is interesting to note that these districts experience good to moderate wind speeds during the south west monsoon period. In view of this, we feel that windmills can be used in these areas for lifting water for irrigation and drinking purposes.

Only 19.81 per cent of the villages in Madhya Pradesh were electrified as on 31-3-1977. The average cost of taking electrical lines to a village in India is estimated to be around Rs. 70,400. The principal justification for providing a village with electricity is that villagers need energy for their irrigation pumps. The cost of electrification in terms of each pump set energised is, approximately Rs. 4,720 to Rs. 14,120 per pump. Undoubtedly, the electrification of the unelectrified villages for providing energy for irrigation involves heavy investment. Here, windmills offer a viable alternative.

The total estimated wind energy potential in the state is of the order of 21.04×10^{9} kwh which is more than the power consumption in the state ($.327 \times 10^{9}$ kwh). Since precise data of forest area in each district is not available, we have calculated the wind energy potential for the entire district. The state has a geographical area of 443.459 sq. km of which forests form 30 per cent. If we exclude this area for wind energy use, the net estimated wind power in the state will be of the order of 14.73×10^{9} kwh Thus even with relatively moderate wind speeds prevailing in most parts of the state the possibility of exploiting wind energy deserves serious consideration.

Since December 1977, a Dutch team from Tool Foundation in co-operation with the organisation of the Rural Poor (ORP) Ghazipur has been working on a project for the development of windmills cap-

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*Department of Physics, University of Roorkee.

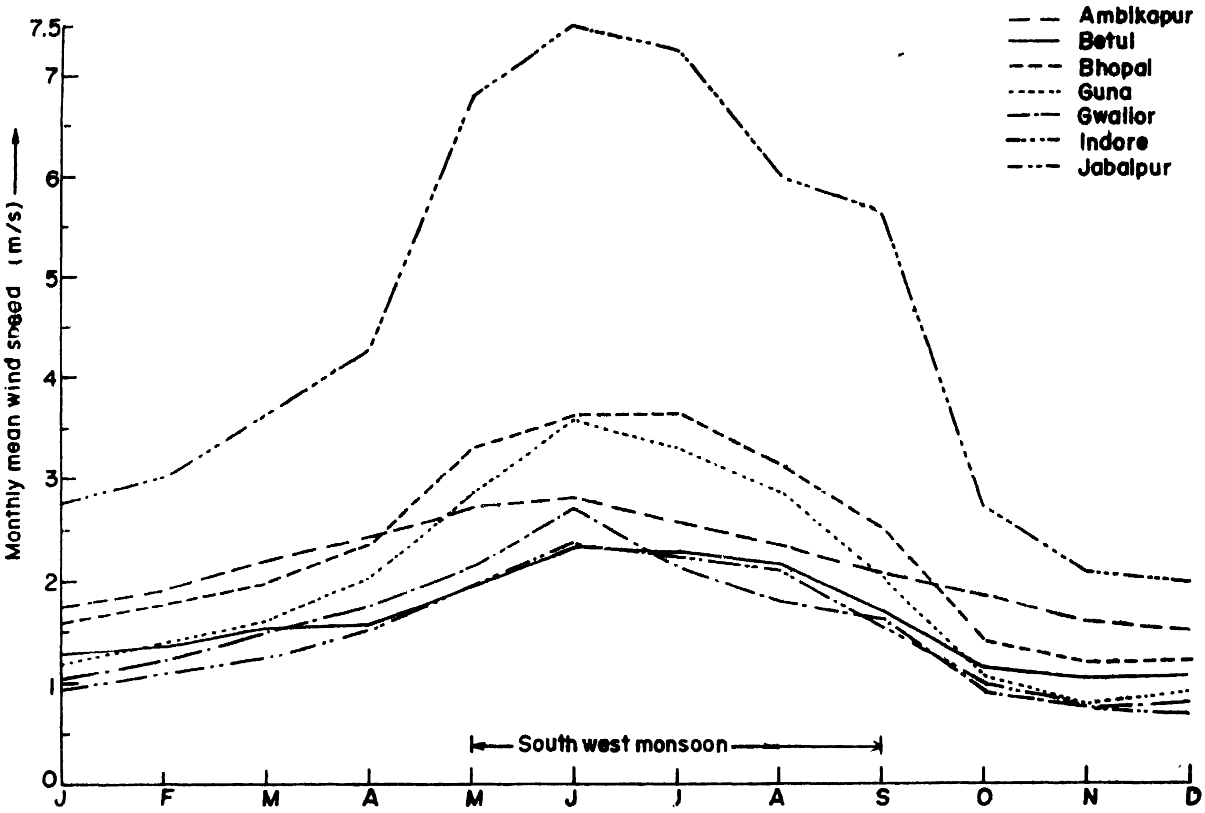

FIG.2(a) VARIATION OF MONTHLY MEAN WIND SPEED.

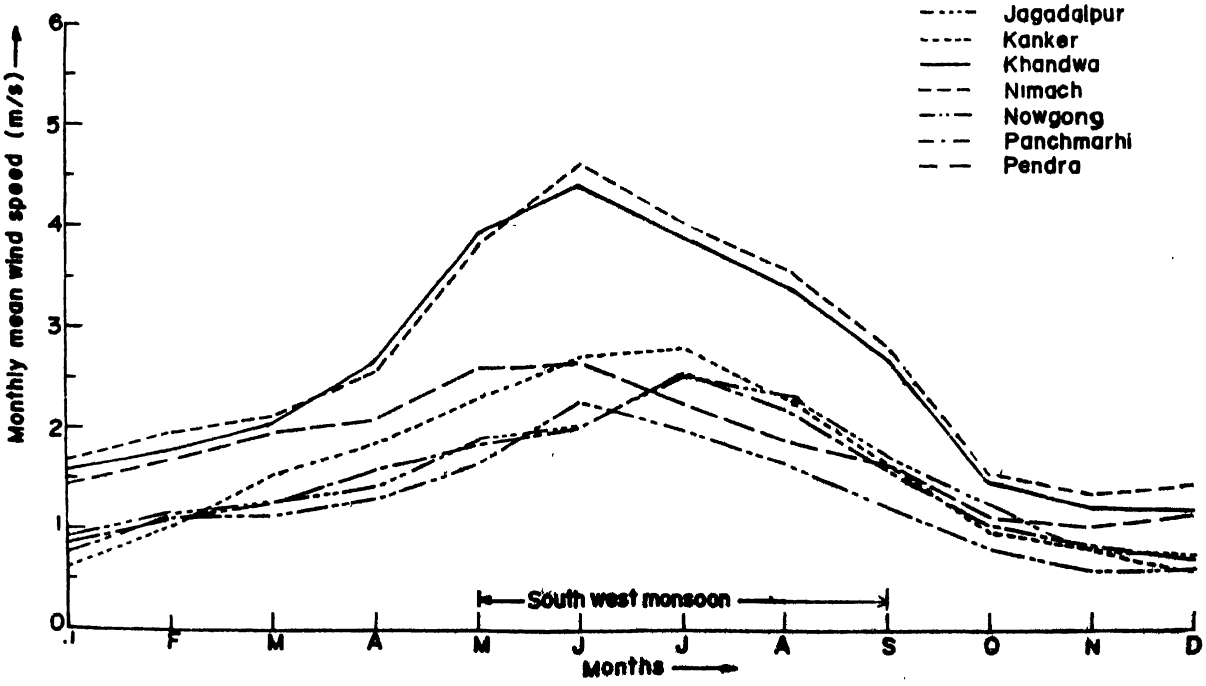

FIG.2(b) VARIATION OF MONTHLY MEAN WIND SPEED.

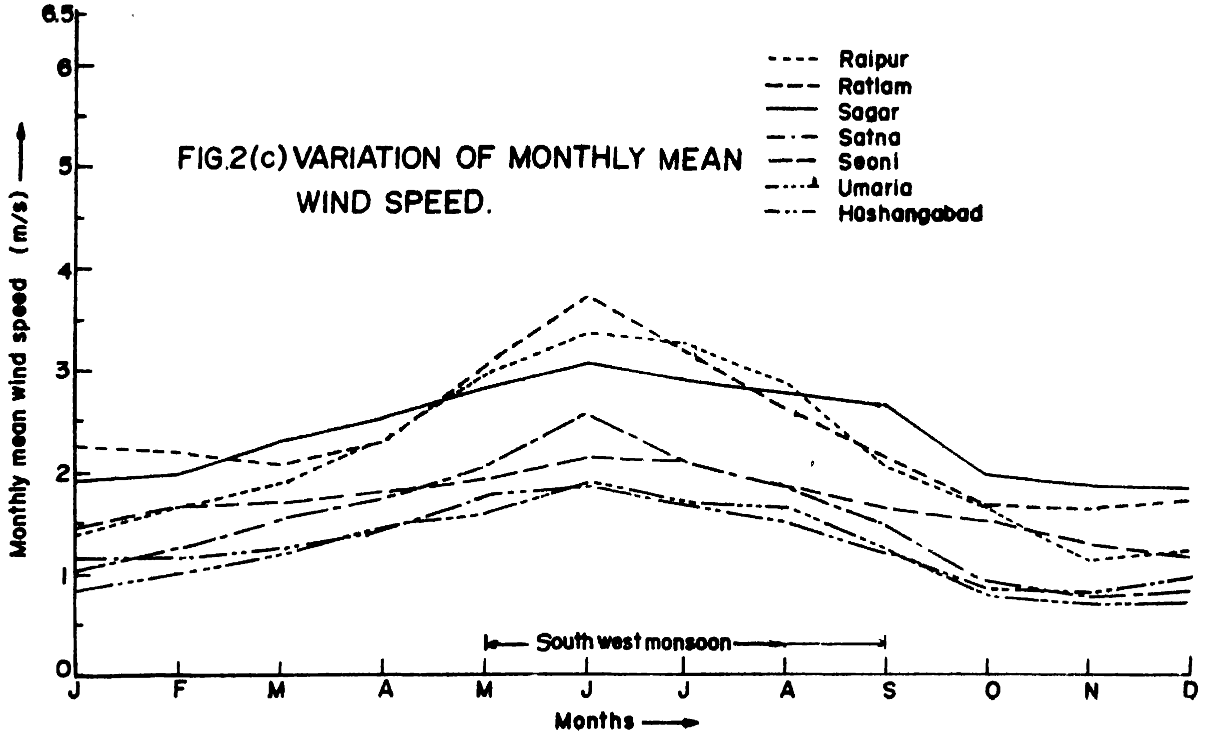

FIG.2(c) VARIATION OF MONTHLY MEAN WIND SPEED.

able of operating at low-wind speeds. The windmill developed by this team has 12 blades and the rotor diameter is 5m and it was amounted on 6.5m high tower. From the beginning of 1980, TOOL-ORP has started commercial production of windmills. This windmill starts pumping water even at low wind speeds of 2.5 m/s onwards. The windmill pumps water into a storage tank (size 10 x 10 x 1.5m). Out of the storage tank, the farmer can irrigate his crops with the help of a syphon at any moment he likes. The syphon gives a flow of approximately 4 litres' which facilitates high efficiency. The storage tank can also be used for fish rearing and for the cultivation of blue green algae which can be used as manure. The entire windmill is built out of locally available material. The basic structure is steel. Besides nylon, for bearings, wood and PVC pipes are used. The total weight of the windmill is approximately 400 kg. The height of the tower is 7 m. the diameter of the rotor 5 m. the length of the tail 4 m. and the windmill costs Rs. 5,500.

A similar type of windmill has been designed by TOOL-ORP for low-lift irrigation with heads upto 2 m. A prototype in operation gives satisfactory results and the estimated cost of windmill is Rs. 1,800 A preliminary economic study on the performance of TOOL-ORP windmill gives strong indications that the wind pumps are competitive with electric and diesel pump sets.

Better utilisation of wind through escarpments

The reason for the slow progress of windmills for extracting energy in India is often attributed to low wind speeds prevailing in most parts of the country over a long period. We know that wind speed gets accelerated if it is allowed to escalate over an artificially constructed dam. The speed in turn increases the power as its cube.

$$P—1/2v^3$$

Where P-Power, d-density of the air and V-wind-speed.

By installing windmills over such a dam would thus be mere economical way to harness windpower especially in plains and in rural area. Laboratory experiments or models simulating dams, or escarpments shows that the wind speed gets accelerated on top of the dam by a factor of 1.5 as it escalates over a 30 slope 10 m high dam, which could be a simple earth dam. The power gain is $(1.5)^3 = 3.38$.

We have shown that the total wind power that may be generated in Madhya Pradesh state is of the order of 14.73×10^9 kwh and with escarpment 55.97×10^9 kwh, which is more than that of the electricity consumed in the state (327×10^9 kwh). This large power can be utilised in rural areas (especially non-electrified) for irrigation and drinking water purposes. There are certain places in the state (Indore, Nimach, Ratlam, Raipur, Sagar, Khandwa and Bhopal) where wind velocities are fairly good and an attempt should be made for exploiting this energy. What is needed is a low-cost, efficient windmill which operates even at low wind speeds. The ORP-TOOL windmill offers promise in this direction.

Industrial Development In Eastern U.P.

P. K. Bhargava*

UTTAR PRADESH is a relatively backward State. Its 36 districts have been notified as backward on the basis of per capita income and other criteria. From the point of view of regional planning there is acute poverty in 15 Eastern districts, 8 hill districts and 4 Bundelkhand districts. In 1980-81, the people below poverty line in rural areas numbered 417 lakhs or 47.85 per cent of the rural population and in urban areas they were 68.6 lakhs or 43.53 per cent of the urban population. What is more distressing is the fact that within this relatively backward State, the eastern districts of the State are real citadels of poverty.

Lakhs of people in the rural areas of these districts can hardly afford two square meals a day even though the majority of the population depends on agriculture. In order to uplift the relatively backward districts of the State from the morass of poverty and also to reduce dependence on agriculture and to solve the problem of rural unemployment, it is necessary to take suitable steps towards industrialisation.

Inadequate Infrastructure

Rapid industrialisation is the answer but this in not an easy task. The problem is multi-dimensional and of varied nature. In fact, a suitable environment and adequate infrastructure are lacking. For instance in a district like Faizabad, having adequate power resources and well-connected roads, the number of industrial workers was as low as one per thousand in 1961 and no entrepreneur from the district came forward for industrial licences during the first three Plan periods. In many districts there is the problem of finance, raw materials, power transport and communications. In Ballia, one cooperative sugar mill could not start functioning in time for want of Rs. 5 lakhs, although the licence for it had already been issued. Over and above this, there are also instances of apathy on the part of the Government machinery. Typical of this apathy is the UP Directorate of Industries' failure in Bahraich to take possession upto September 1970 of an industrial estate completed by the P.W.D. at a cost of Rs. 1.66 lakhs in 1963-64 and when he P.W.D. let out part of it to some people, there was a prolonged dispute between the two departments.

The number of units registered under the Factories Act and the number of daily workers is decreasing in Deoria and Ghazipur. The eastern districts of the State have not only remained backward industrially but this has resulted in continued poverty of this region and due pressure on agriculture. Suitable steps must be undertaken by the State Government to remove the difficulties of the existing industrial units and to establish resource based and demand based industries in the region to solve the problems of unemployment and poverty of these districts.

Government Incentives

The State Government on its part has established a number of institutions, such as the Pradeshiya Industrial and Investment Corporation of UP Ltd. (PICUP), Uttar Pradesh Financial Corporation, UP Small Industries Corporation, UP State Industrial Development Corporation, etc. In addition, the State has established agencies that look after the development of specific industries such as cement, cotton-textiles, sugar, electronics etc. The scheme of District Industries Centres has been taken up in all the 56 disricts of the State. The State Government has also been giving various concessions|facilities and subsidies to the entrepreneurs in the state in the form of cheaper land, supply of raw material at competitive prices, rebate in power, sales tax holiday for three years, consultancy services, etc. These steps are welcome as they will help to strengthen the industrial base of the State.

Need for Improvement

However, what is needed and desirable is the adoption of an integrated approach towards the industrial development of the state, especially that of the eastern districts. As a first step in this direction, the State Government must create adequate infrastructure relating to transport and communications, power, finance, marketing, etc. and efforts should be made to solve the problems of existing industrial units speedily. Through techno-economic surveys development of demand based and resource based industries should be encourage in these districts. Some years ago, a Central Employment Survey team recommended that dairying was the most suitable industry for Ballia. Similarly, there are good prospects for development of sugar industry in Ghazipur and Faizabad and of alcohol manufacturing in Faizabad and Jaunpur. To harness these potentialities, there is also need to generate confidence among the entrepreneurs towards the policies of the State and to give wide publicity regarding the incentives, concessions and facilities that the State is providing in this direction so that industrialists are attracted to invest in these districts. There should also be coordination in the development programmes of various agencies and Government departments as also the creation of such institutional set-up or other forms of people's organisation that may have a local bias and touch.

Paucity of resources has been one of the major bottlenecks in the development of eastern districts

(*Continued on page 36*)

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*Reader in Economics, Banaras Hindu University.

Window on the World

Development and planning in Kuwait

Dr. Mohammad Iqbal*

THE Oil rich welfare state of Kuwait occupying north-western corner of the Gulf is bounded on the east by the Gulf in the south and south-west by the kingdom of Saudi Arabia and in the north and west by Iraq. At the conclusion of the second world war it was a poor traditional kingdom, chronically short of water and dependent on small-scale fishing, pearling, boating and trade with the countries along the Gulf. In 1980 it emerged as the world's sixth largest oil producer with the world's highest per capita income.

After being a British Protectorate for 62 years from 1899 Kuwait emerged as an independent State in June in 1961. Lying at the head of the Gulf close to the Shatt El Arab, Kuwait at one time occupied an important place in the development of trade between the East and the West. It also held a strategic position in the Arab world itself. When the Suez Canal supplanted the overland routes as the vital link between the Mediterranean and the East, the interest in the Gulf of the powers depending on East-West trade was in no way diminished. It was realised that they depended upon West Asia as a whole for the furtherance of their overall strategies.

In terms of area and population Kuwait is a very small country but it plays a very vital role in the world economy by producing over 3.5 million barrels of crude oil daily. It enjoys the highest standard of living in the world with per capita income of more than US $ 14000. The economy registered a substantially high annual average growth rate of 7 per cent during 1970—81.

The country presents the case of rapid economic evolution, radical transformation of Kuwait society and successful economic policies, touching all aspects of country's development. It has laid down the economic policy not merely to initiate a few welfare measures but to diversify and create an infrastructure which would give the country a wide range of self-sustaining and ever-expanding economic activity and ultimately self-sufficiency.

Until 1920 little was known about Kuwait's oil reserves. The first well drilled at Bahrah in May 1936 proved dry. But oil was discovered in February 1938 in the Burgan oil-field where production started in 1946. Burgan was recognised as the world's largest single field. On the same field eight more wells were drilled and one on what was to become the Magwa field. In 1942 because of the critical sitauation created by the war in the Middle East, the wells were plugged and work was not commenced until the end of the war in 1945. Till the Second World War, KOC were the sole concessionairs in Kuwait oil. Kuwait government had a fifty per cent interest in the Neutral Zone between Kuwait and Saudi Arabia and a concession for exploiting this was awarded to the American Independent Oil Company (Amin Oil) in 1948. More concessions were given in 1958 to the Arab Oil Company, a Japanese owned company, to exploit off-shore oil in the territorial waters of the Neutral Zone and in 1961 to Royal Dutch Shell to exploit the coastal waters off Kuwait's coast itself. During the 1970's the most vital economic debate had been going on about the speed with which Kuwait should convert its only material assets oil and, to a lesser extent, gas into revenue.

Kuwait has attained significant achievements in the field of economic development. Substantial developments took place in construction and social services along with the changes in consumption and living patterns. The government has sought the expansion of utilization of oil resources and intensified expenditure for large industrial and construction projects.

Prior to 1946 Kuwait's economy depended mainly on commerce, navigation and trade in pearls. The first shipment of oil from the country was made in 1946. Rapidly increasing oil exports led to speedy economic development and substantial increase in per capita income. The oil sector's annual contribution to the GDP during 1975—79 averaged 65.2 per cent (at current prices). During 1969—79 oil receipts constituted an average of 86 per cent per annum of total Government revenue. However, oil sector plays a limited role in absorbing manpower, because the nature of production operation necessitates intensive dependence on sophisticated technical equipment

Since Kuwait's economy depends heavily on oil as a major source of income (though oil is a depleting item), there is a need for diversification of its sources of national income. Oil receipts during seventies represented 85 per cent of Government revenues and around 64 per cent of the GDP. It is extremely important to expand the productive base and to minimize dependence on oil even if such a process would initially require development of petrochemical industries which in turn depend on oil.

Agriculture in Kuwait contributes very insignificantly to GPD. Because of the low fertility of the soil, unfavourable climatic conditions and lack of irrigation the share of agriculture to GDP hardly exceeds one per cent. Its working population is mainly engaged in commercial industrial or other activities in public sector. But despite these limitations agricultural sector has made significant achievements. The government is encouraging agriculture in both the public and private sectors, by providing adequate facilities and by establishing research and experimental stations. But still there appears to be no chance of agriculture ever becoming a major factor in Kuwait's economy because of inhospitable agro-climatic conditions like lack of fertile soil, low precipitation, high temperature and lack of fresh water.

Industry like agriculture plays a very insignificant role in Kuwait's economy. But the government continues to encourage industrial development in its efforts to diversify the economy and achieve balanced growth. Industry's share to GDP does not exceed six per cent.

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During the last ten years it grew at an average rate of about 11 per cent. Industrial development is retarded by the scarcity of labour and technical skills, lack of indigenous raw materials other than oil and natural gas and relatively limited size of the market. Factors favouring the development of industry are the availability of domestic capital, cheap energy and good transport and communications systems coupled with favourable investment. Most of the large-scale industries based on petroleum are concentrated in the Shuaiba Industrial Area.

Kuwait is among the countries where development planning started late. The Kuwait Development Board was set up by the Government in 1952 to supervise development spending. However, a new Planning Board was formed in 1962 under a decree issued by the Emir on the recommendations of the World Bank Mission which visited this country in 1961. Board consists of the Prime Minister, seven Ministers directly connected with Socio-economic development, the Mayor of Kuwait and four representatives of the private sector. The Prime Minister is its Chairman. The Board enjoys powers to supervise the economic and social growth of the country through five year plans. The First Five Year Plan for the year 1966-67 to 1970-71 was submitted to the government in 1965.

Objectives of First Plan

The first Plan aimed at achieving an increase in the gross domestic product of 37 per cent during 1967-68—1971-72 and an annual average growth rate of 6.5 per cent. Its other objectives were (1) to take steps to raise the per capita income constantly; (ii) to ensure a more equitable distribution of income in order to achieve a reasonable degree of social justice and to secure a continuously dynamic economy, (iii) to achieve greater degree of diversification in the sources of the national income while at the same time increasing the relative contribution of the non-oil sectors of the economy; (iv) to train Kuwait's citizens in science and technology to meet the development requirements of the country's economy; and)v) to co-ordinate the needs of economic development in Kuwait with the desire for a comprehensive economic integration of the Arab countries.

In order to reduce dependence on oil, the Government of Kuwait has been laying emphasis on industrialisation in the first and subsequent five year plans. It has, thus, adopted a policy of industrialization mainly concentrating on industries which depend on petroleum as raw material and those having good domestic market. An important aspect of Kuwait's welfare activities is its housing policy. The Ministry of Social Affairs and Labour has been assigned the task of providing homes for low income people. Poor people unable to build their own houses are given good and comfortable houses against a payment of about K.D. 7 a month. Housing receives the highest share of 31.6 per cent of total allocation of K.D. 15,289 million in the Development Plan for 1976—1981.

Vulnerability.

The dependence upon a single exhaustible resource is a source of extreme vlunerability of Kuwait's economy. And this is likely to continue for a long time to come. It can be countered somewhat by industrial diversification, in the field of non-oil based industries. Yet another important factor responsible for its vulnerability is its dependence on imports. This is also bound to continue because of the country's limited production base. This can, of course, be offset somewhat by greater regional cooperation. But it seems that country's dependence on imports will remain a fundamental part of its economic fabric. The oil exploitation in countries like Kuwait is essentially a transformation of one form of wealth into another. Much of this transformation has been into assets held abroad, resulting in Kuwait's accumulation of several billion Kuwaiti dinars worth of foreign investments. Though it provides an alternative source of income and reduces dependence on oil alone it carries with it a number of other uncertainities. Another form of external dependence arises from the high proportion of expatriates who constitute over 70 per cent of the labour force. It is of consequence to Kuwait's future development. ☐

Industrial Development in Eastern UP

(*Contd. from page* 34)

of the State. For several decades in the past, cooperatives were the main, institutions contributing towards rural development. It is only about a decade ago that commercial banks entered the field. We are happy to record that the Central Bank of India is playing a vital role in the rural development of the State. The bank, besides financing the farmers for agricultural development through various schemes for small and marginal farmers, landless labourers, has also financed, rural artisans and entrepreneurs for development of rural cottage and small-scale industries and unemployed persons for taking up new ventures for self-employment. In addition, the bank has also undertaken a number of other activities related to development and to that extent productivity and economy have also been taken care of. The bank has also been assigned with lead bank responsibility in Etawah, Deoria and Ballia for the overall development of these districts. It is hoped that other commercial banks will also contribute similarly towards agricultural and industrial development to remove poverty and rural unemployment. ☐

Happy IFFCO Group in a lush green field of a village adopted by them

IFFCO adopted Villages

S. N. **Bhattacharyji***

INDIAN Farmers, Fertiliser Cooperative Ltd. (IFFCO), the biggest cooperative producer and marketer of fertiliser in the whole of Asia, has also been playing its role in the Integrated Rural Development Programme of the Government. For quite some time the IFFCO is adopting villages in most of the States and Union Territories. The number of villages adopted has slowly risen from 259 villages to 400. Here are a few examples to illustrate the work being done by the IFFCO in these villages. Smt. Govamma, 50 is a Harijan widow of Agara near Bangalore. She has four acres of dry land. She introduced Ragi, finger millet and red gram, all demonstrated successfully by the IFFCO in cooperation with the Karnataka University of Agricultural Sciences and the State Department of Agriculture. By the end of 1980 the entire dry land of the village was covered by Indaf-I and Indaf-5 a cross between Indian and African variety of Ragi, raising the production from 2-3 qtls per acre to 8-10 qtls. In wet land, high yielding paddy varieties like Pushpa and MR-272 were simultaneously cultivated.

Three crops of Ragi are grown in Rabi and Kharif seasons, with an additional summer yield. The land is seldom kept idle. Straw of Ragi has proved to be much valuable for milch cows and fetches more money than paddy straw as it is more nutritious.

A few decades ago, pulses were grown only in winter season. Thanks to the continued research of the University of Agricultural Sciences and field demonstration by the IFFCO, pulses are now grown throughout the year. When the IFFCO adopted this village in 1978, it was a backward one. But Agara is now prospering.

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*Consultant (PR), IFFCO

ankarpur, near Varanasi, in UP is another village opted by the IFFCO. It is not an average village of India, poor and struggling. Villagers own irrigated land and being Jadavas, look after their cattle wealth. The people are taking advantage of science and technology. A small village, it has already three gobar gas plants and about half a dozen armers are on the waiting list. IFFCO's Field Representative normally an MS in Agriculture, helps the villagers by explaining the usefulness of various scientific innovations and help in putting them in contact with parties who manufacture these. He also helps the villagers by introducing the latest agricultural practices. Only high yielding varieties are used in the village and chemical fertilisers supplement the nitrogenous cowdung. The standing crop will evoke anybody's envy. IFFCO has also donated to the village two sprayers for use of insecticides and a seed drum

From Uttar Pradesh, we go to Orissa. Shri Devendra Nath Otta, a school teacher-cum-progressive farmer, with the help of IFFCO's Field Representatives and Area agronomist is not only changing the face of Manitri, adopted village, but the adjoining villages as well. He could anticipate the value of chemical fertilisers, particularly those produced by the IFFCO and offered his land as a demonstration plot. He was also instrumental in organising, with IFFCO's help, a farmers' meeting and collected about 200 agriculturists from neighbouring areas. Under IFFCO's promotional and educational programmes, a few more demonstration plots were set up. The latest high yielding paddy variety, "Taichun one was popularised though people like Shri Otta.

Masala, is another adopted village in the Wardha district of Maharashtra. The farmers in neighbouring areas come to know immediately of the research results of the laboratory in the village. The laboratory is in a way a family venture, run by two brothers and a cousin, all agricultural experts. Shri Ravi Kashikar 37, M.Sc. in Agriculture, is the brain and the inspiration behind the miniature laboratory doing research in cotton, chillies, banana and vegetables. The improved variety of chillies with reddish tinge that the lab introduced has become very popular with the farmers who are fond of red colour in food. Varieties of cotton which mature earlier and give two crops a year have been tried by the farmers without delay. The laboratory sells cotton seeds and chilly seeds, all coated for protection against pests and diseases. Shri Ravi's brother, Shri S. G. Kashikar has a doctorate in plant breeding and cousin, Shri G. V. Umarkar a doctorate in plant protection. The trio started the lab in modest bricks and mortar room, in 1977. The secret of Raviji's success, as he tells others, is 'extension', in one word. He goes round the adopted village and other villages in the neighbourhood as well, not only to popularise the new strains but to educate the farmers on their use. In this mission he has the active cooperation of IFFCO's Field Representative Shri G. S. Patil, an Agriculture Graduate from the Pune Agricultural College. The laboratory has two microscopes costing about Rs. 1,500 each and a chemical balance costing Rs. 500. There is an indigenous growth chamber where heat is produced for quick germination. Seeds are also protected from vagaries of climate.

There could be other scientists and progressive farmers doing similar work in remote villages, to bring about a silent socio-economic revolution in the country side. IFFCO is taking their assistance in popularising improved techniques of agriculture and use of fertilisers. □

TRENDS

Decentralising PF Organisation

THE Employees Provident Fund Organisation has opened 19 sub-regional offices out of the 23 sanctioned under its decentralisation scheme. Disclosing this at Baroda recently the then Minister of Planning and Labour, Shri Narayan Datt Tiwari, said that a blue-print for the phased opening of more and more sub-regional offices was under active consideration of the Employees' Provident Fund Organisation.

The Minister said the Organisation now covered 163 industries aud about one lakh establishments with 110 lakh subscribers. To enable subscribers to know the provident fund accumulations standing to their credit, a proposal of Central Board of Trustees to introduce pass books on an experimental basis for subscribers in Delhi, Gujarat and Madhya Pradesh regions is now under the consideration of the Government.

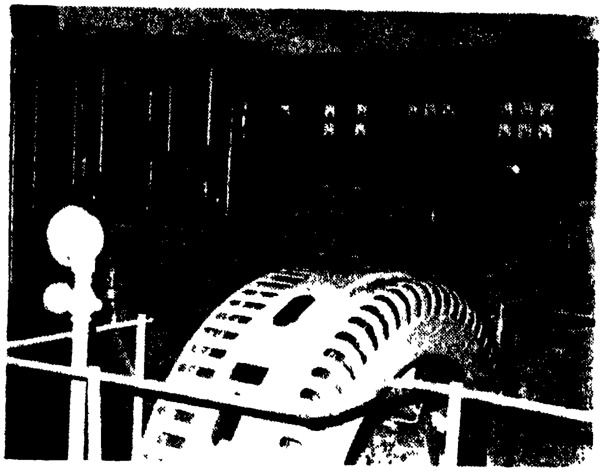
Streamlining of Post Office Savings Bank

AS a part of the efforts to improve and simplify the Post Office Savings Bank services, the P&T Department is introducing pay-in-slips with counterfoils for deposits as in commercial banks. This will be introduced from October 1, 1981. With the provision of a counterfoil, the customer will get a formal receipt for every deposit besides the record of the deposit in his pass book. The new pay-in-slip would be used for cash deposits as well as the crediting of cheques and drafts.

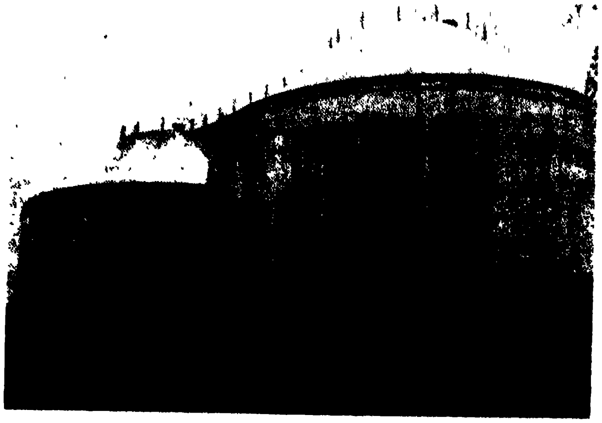
The Post Office Savings Bank deposits registered further growth during the financial year that has gone by. At the end of March 1981 the outstanding deposits had reached Rs. 7859 crores in the different savings schemes, which meant an increase of Rs. 1090 crores during the financial year 1980-81.

Mineral Development in Arunachal Pradesh

THE geological investigations over the past few years have revealed considerable promise about mineral prospects in Arunachal Pradesh. There are also reported occurences of graphite in Lohit district and numerous base-metal deposits of unknown potentials. The North Eastern Council has been sponsoring several schemes for promotion of mineral development in Arunachal Pradesh. The high promise of Namchick coal deposits has been revealed during prospecting done by the Geological Survey of India



Inside view of the sullage gas plant



storage tanks of the Sullage Gas

be available and pollution hazards will lessen. The plant covering an area of 300 acres will be expanded to treat 125 MGD of sewage by 1985. Its present capacity is 66 MGD. The processing of the city's waste can bring about considerable reduction in demand for kerosene and cylindered gas. The present plants to connect 10000 homes is likely to save every month six lakhs of rupees in terms of the cost of kerosene equivalent. In a year, it amounts to Rs. 72 lakhs. Experts estimate that by processing the entire sullage, they could meet 20 per cent of the domestic fuel demand in the city. Some projections indicate that if the 140 cities and towns in India, which cannot escape sewage treatment, make use of it to produce gas, it could save the cost of imported kerosene worth crores of rupees.

Smt Indira Gandhi presenting some braille books to a blind person

Free Appliances for the Disabled

THE Ministry of Social Welfare has drawn up a new scheme to provide financial assistance to handicapped persons to buy sophisticated, scientically manufactured modern aids and appliances that help promote their physical, social, economic and psychological rehabilitation.

Under the scheme, aids and applicances would be available to the disabled free or on subsidised rates depending on the income of the disabled or his parents and guardian in case he is a dependent. Persons with monthly income upto Rs. 750 would get the aids free and whose income ranges between Rs. 751 to Rs. 1500 would be given the aids at 50 per cent of the cost

Unified Braille Code for Indian Languages

THE National Institute for the Visually Handicapped has finalised a code of contractions and abbreviations in Braille to facilitate the process of reading and writing by the blind. Four Hindi language books for classes V and VI are being prepared in the code. The Institute is also trying to devise contractions and abbreviations for other Indian languages to achieve uniformity.

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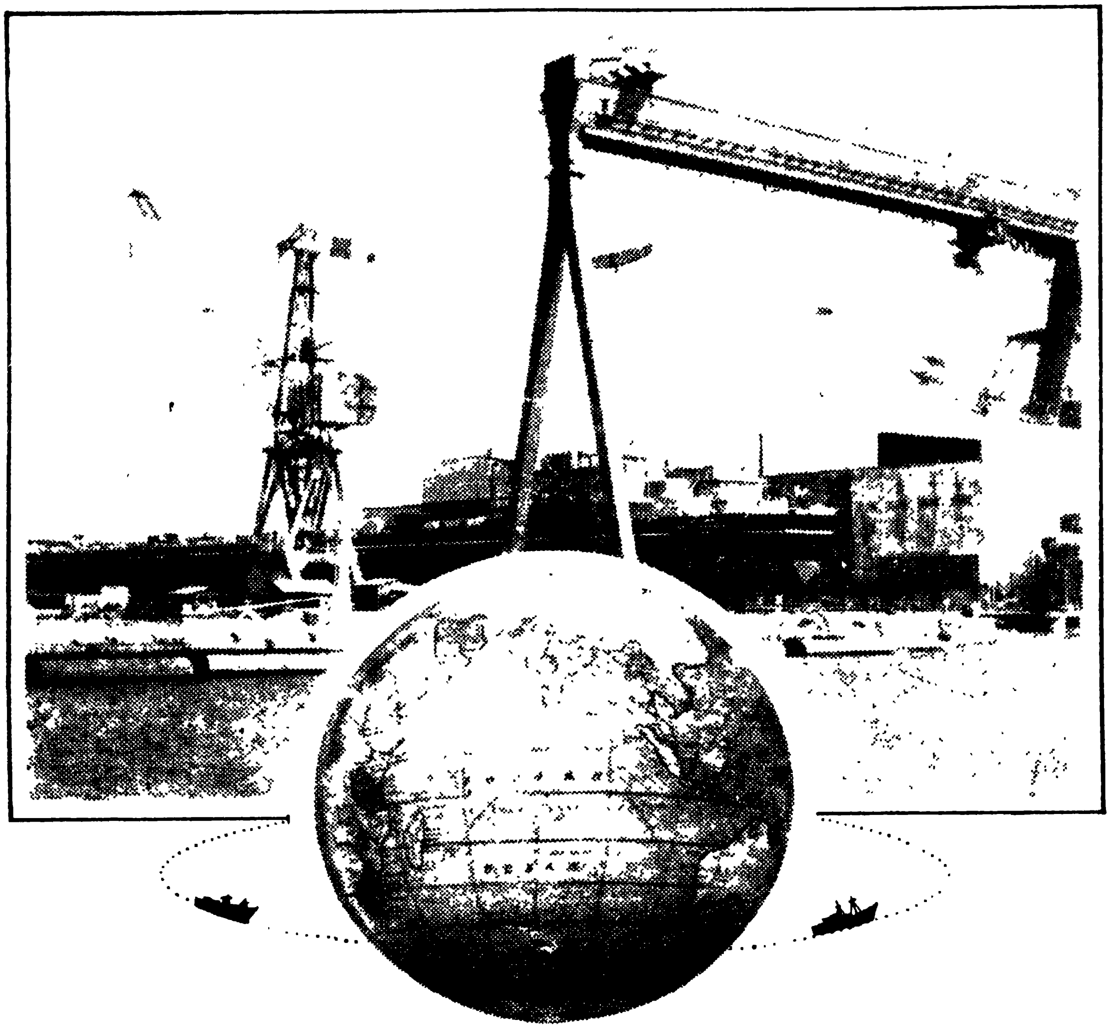

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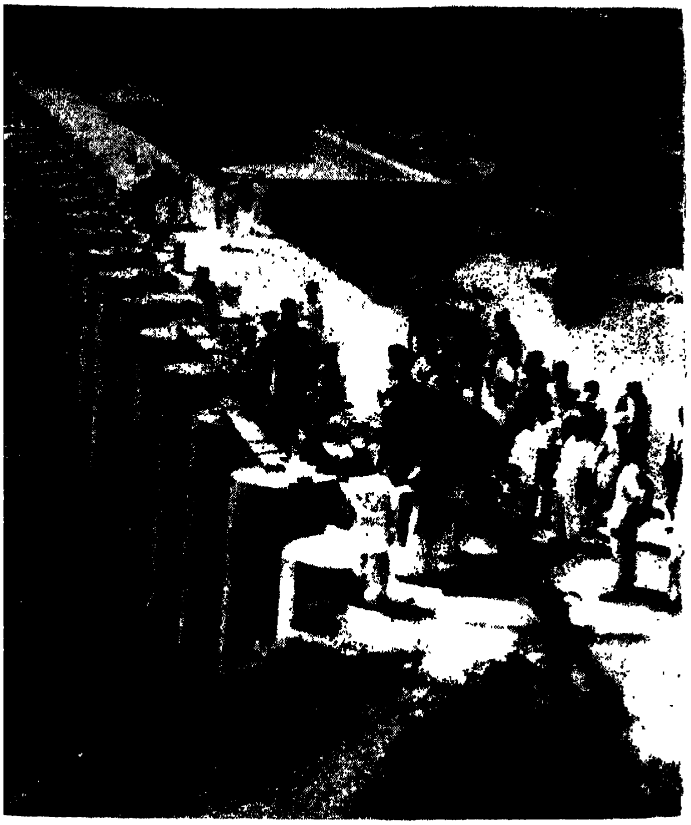

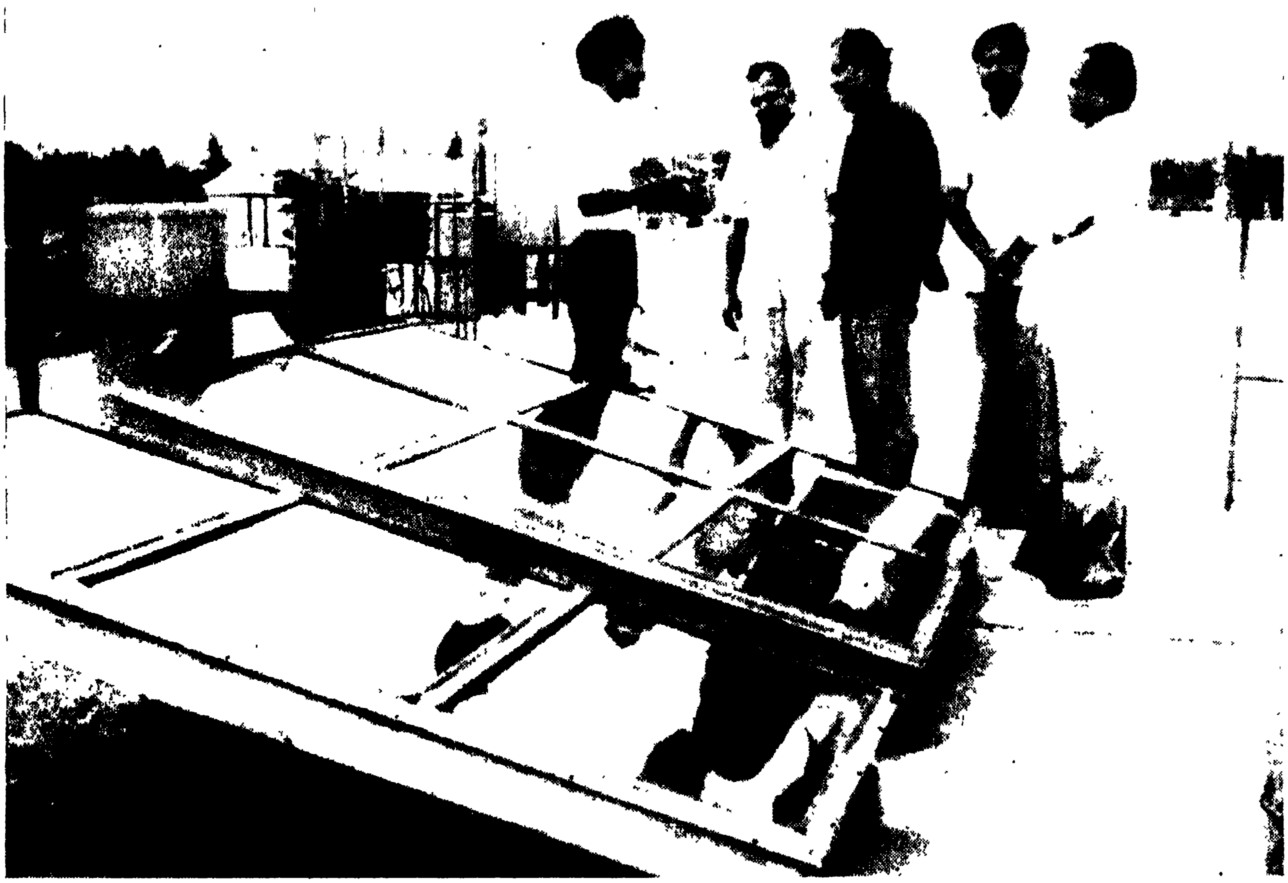

With an investment of Rs. 2500, TSP-206A assures to give life-long service.

TSP 206A

Vasudev Bhat*

TSP-206A is not a computer. It is a Solar Water Heating system developed by the Tungabhadra Steel Product's Research and Development Department. It is a self contained modular system, capable of meeting hot water needs of residential and commerial establishments at a reasonable price. With an investment of Rs. 2,500, TSP-206A assures to give a life long service. This system is economical for water heating when compared to electricity, gas, furnace oil and kerosene.

The system is simple and comprises of (1) Solar Panel (2) Thermal Storage (3) Structural Support and piping.

The Solar Panel forms heart of the system. It is a steel box structure covered on top by glass and houses absorber plate, and thermal insulation within. The Thermal Storage is adequately insulated hot water tank which supplies hot water round the clock. The Structural Support and piping consist of collector module and thermal storage, interconnected by piping.

The system can be tailored to meet our needs from 100 to 10,000 litres per day or even more. The company has already installed this module in nearly 60 locations in the country.

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*Asstt. Information Officer, PIB Hubli

Solar Dehydrator Developed

THE Central Potato Research Institute at Simla has developed a solar dehydrator for making potato chips.

The dehydrator can also work on electricity. The solar dehydrator can dry about 50 kg. of fresh potato chips in one day making available 7 kg. of dry chips.

It is stated that the dehydrator not only saves time and labour, but also helps to get good quality chips. Because direct drying in the sun often leads to browning and discolourisation of the chips when fried.

The equipment designed by the institute can be used at any place with adjustment of the angle roof slope, which should be almost equal to the latitude of the place.

Portable 'Non-Contact' Thermometer

A new portable infrared thermometer which can measure temperatures in the range 600 to 1600°C very accurately at distances up to several meters from the target-spot being assessed is offered by a British firm, M/s. Land Pyrometers Limited. This firm is represented in India by M/s. Larson & Toubro Limited. Designated as Cyclops 51, the thermometer has major applications in the steel and non-ferrous, glass, ceramics, power generation and chemical industries. It is powered by 9 V battery and employs camera-quality optics of the single-lens reflex type.

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Editorial

Search for New Energy Sources

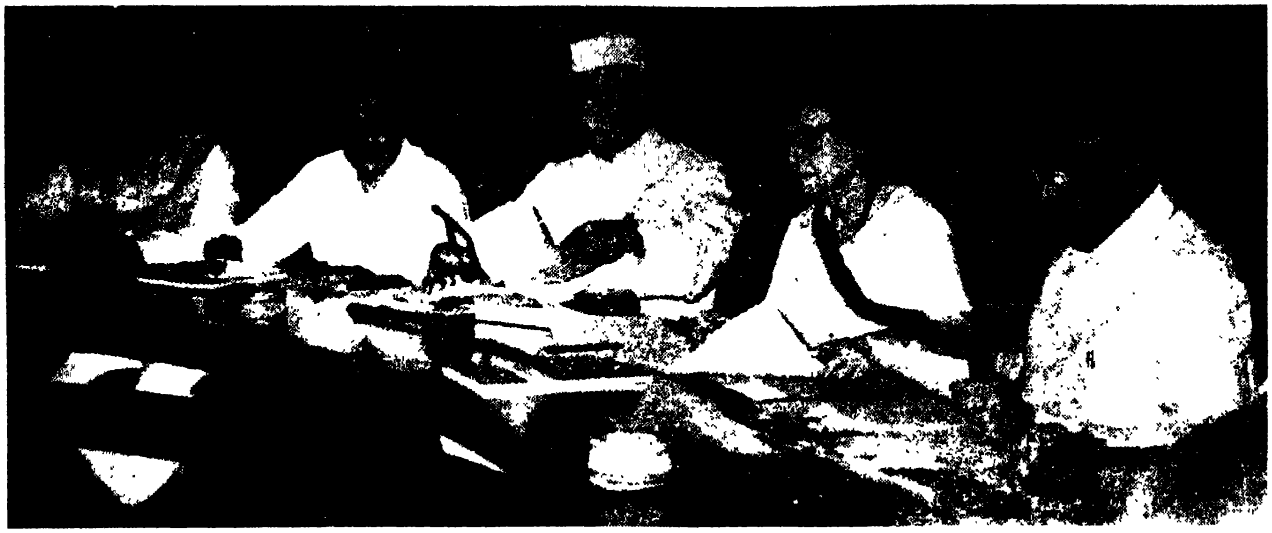
OIL prices have increased by about 28 times in the past eight years. The oil reserves are also fast getting depleted. At the same time, the demand for oil, especially by poor countries which want to develop themselves, is fast increasing. Ninety out of 133 developing countries do not have any oil reserves. Nearly three-fourths of the export earnings of these countries are spent on oil imports. The distribution of oil is skewed in favour of rich nations whose per capita consumption is twelve times that of developing countries. Another major energy crisis facing the poor nations is the rapid denudation of their forests—10 to 25 million hectares per year—which provide fuelwood to the people. In fact half to three-fourths of their energy supplies are from wood and animal wastes.

As the need for 'new and renewable sources of energy' became very urgent , the United Nations Organisation arranged for a big conference on the subject last month at Nairobi. More than 1000 delegates from over 150 countries participated in that conference. Some rich nations like the U.S. and oil-exporting countries—in spite of many of them belonging to the 'developing' category—did not adopt a helpful attiude in the meeting towards the poor countries. But some other advanced countries like Canada, Sweden, Japan, Italy, Norway and the Netherlands were generous in offering assistance. Our Prime Minister, who delivered the keynote address, called for a world energy programme for helping the developing nations. She deplored the reckless use of oil by developed countries and urged for its equitable distribution.

The conference identified six policy areas which need immediate attention and also 14 renewable forms of energy. It adopted an action programme for developing technology to utilise renewable energy sources and for speedy reforestation operations. Due to the stone-walling by rich nations, the conference could not reach an agreement on the financing of the action programme and on setting up institutional mechanism for monitoring the execution of the programme. An earlier proposal by the World Bank to set up an energy fund to help the developing countries has also been stalled by the U. S. It is estimated that about 50 billion dollars would be required annually by developing countries for promoting renewable sources of energy.

Because of the failure of the conference in its main task some critics have dismissed it as a non-event. But many feel that it has served a useful purpose in making the world aware of the seriousness of the energy crunch and the need for collective self-reliance among the developing countries. It may lead to intensified efforts in developing alternative sources of energy.

Even though India is at present importing bulk of its oil requirements, her efforts to discover new oil reserves are proving successful. She has also rich resources of coal, lignite, thorium and water. There is also much scope for developing solar and wind energies. For the immediate future, we should convert tree-planting from a symbolic 'festival' into a mass programme and the biogas plant from a showpiece into a widespread rural phenomenon. We should also give mode encouragement to long distance goods traffic by rail than to road transport and within the railway itself to the use of coal and electricity than to that of oil. ☐



Under the chairmanship of Smt. Indira Gandhi the Planning Commission approved the Annual Plan for 1981-82

More Outlay on Annual Plan for 1981-82

DURING its meeting on August 6, 1981, under the Chairmanship of the Prime Minister, the Planning Commission approved the Annual Plan for 1981-82. It also reviewed the resources position and considered the implications of the 1981 Census.

The Commission noted that despite the substantial resource mobilisation by the Centre and some States and increase in agricultural and industrial production, the economy was still facing strains. Increased deficit financing, continuing inflation and price rise, continuing infrastructural constraints, shortage of some essential articles like edible oils, pulses, steel and cement; and excessive increase in the balance of payment deficit constitute the adverse factors which need to be tackled. Because of these circumstances, it is learnt that Commission did not favour the inclusion in the Plan of any new project other than those already included. It was also felt that the States should strictly adhere to the Plan programmes and subject their projects to greater scrutiny with regard to financial cost and time-span.

Highlights of the Annual Plan 1981-82 and review of the previous year's performance, as contained in the Planning Commission's document, are given below:

The Gross Domestic Product, which had declined by 4.5 per cent in 1979-80, is estimated to have increased by about 7 per cent in 1980-81. This was largely on account of a substantial increase in agricultural production, both as a result of favourable monsoon in most parts of the country and the continuing measures to promote agricultural development. The total agricultural production is expected to have increased by as much as 19 per cent during 1980-81 in contrast to a decline of 15.5 per cent in 1979-80. The output of foodgrains is estimated at around 133 million tonnes, which is higher by as much as 24 million tonnes than in 1979-80 and even marginally higher than the crop of 1978-79. Among commercial crops, production of oilseeds and sugarcane is expected to be substantially higher than in the previous year i.e. by 21 per cent and 19 per cent respectively. Production of cotton and jute is also expected to show a marginal improvement.

Industrial production, which had declined by 1.4 per cent in 1979-80, remained depressed in the first quarter of 1980-81, due mainly to the continuation of infrastructural constraints. However, as a result of the concerted and coordinated action taken to improve the performance in the three critical sectors of power, transport and coal, the infrastructural constraints eased significantly, particularly from the beginning of the second quarter of 1980-81. While the generation of hydel power picked up from July as a result of good monsoon and replenishment of water in the reservoirs, the generation of thermal power has shown a significant rise since October 1980 as a result of increased availability of coal to thermal stations and the steps taken to improve their operational efficiency. In the latter half of the year, i.e. during October 1980—March 1981, total electricity generation is estimated to have shown an increase of 13 per cent as compared to that in the corresponding period of the previous year. Over the year as a whole, total electricity generation is expected to be 118 billion kwh representing an increase of almost 5.7 per cent over the 1979-80 level. The production of coal which had ranged between 101 million tonnes and 104 million tonnes in the last 4 years is estimated to have risen to 114 million tonnes in 1980-81. The movement of goods by railways during the first half of the year 1980-81 continued to be lower than in the corresponding period last year, but, as a result of the various steps taken to improve the efficiency of railways and streamline their operations, there has been a marked improvement in the latter half of the year. On the whole, the total originating revenue earning traffic in 1980-81 is estimated to be marginally higher than that in the previous year. There was also a significant improvement in industrial relations, the mandays lost in 1980 being only 12.9 million as against 43.9 million in 1979.

The overall industrial production during April 1980-March 1981 is estimated to have been higher by 3.6 per cent as compared to that in the corresponding period last year. The important industries which recorded increases in production included coal and lignite, phosphatic fertilisers, automobile tyres, machine tools, industrial machinery (except sugar), heavy electrical equipment, commercial vehicles, agricultural tractors, sugar, vanaspati, GLS lamps, etc. However, production in the case of certain vital industries, i.g. crude oil, petroleum products and nitrogenous fertilisers shows a decline as compared to that in the previous year. The production of steel and cement was more or less of the same order as in the previous year.

On the basis of the latest available information, the expenditure, on the Plan in the public sector in 1980-81 is estimated to have been around the same level as envisaged in the Annual Plan for that year viz. Rs. 15,109 crore. However, the contribution for the Plan from the budgetary sources of the Central and State Governments and internal resources of public enterprises fell short of the original estimates. As a result deficit financing in 1980-81 is estimated to have been higher than the budgeted level. Even so, it was substantially lower than the record level of Rs. 3073 crores reached in 1979-80. This, together with the continuance of the restrictive monetary policy, decline in food credit and drawings on foreign exchange reserves, helped in keeping the monetary expansion under control.

On the whole, the wholesale price index recorded an increase of 16.4 per cent between end-March 1980 and end-March 1981, which is significantly lower than the increase of 21.4 per cent in the previous year. However, the annual average index for 1980-81 showed an increase of 18 per cent over that for 1979-80 compared to an increase of 17.1 per cent in the previous year. The consumer price index rose by 12.1 per cent over the 11 months ending February 1981 as against 11 1 per cent in the corresponding period of the previous year. The average index for the 11 months ending February 1981 shows an increase of 11.3 per cent as against 8.2 per cent in the corresponding period of the previous year.

On the external front, the balance of payments position showed a sharp deterioration mainly on account of the rise in the international prices of crude oil and petroleum products. The import bill for petroleum crude and its products is estimated to be around Rs. 5650 crores for 1980-81 compared with only Rs. 1677 crores two years ago. The total import bill is expected to be of the order of Rs. 12,000 crores whereas the exports are estimated to be around Rs. 7,000 crores. The overall trade deficit is, thus, expected to be around Rs. 5000 crores. Even after taking into account the surplus under invisibles and net external assistance, the remaining deficit was of a substantial order. As a result, the foreign exchange reserves declined by Rs. 340 crores during 1980-81 in spite of an inflow of Rs. 815 crores from the I.M.F.

Annual Plan 1981-82

To raise the tempo of development, the Annual Plan for 1981-82 envisages a substantial step-up in investment. The public sector Plan outlay for 1981-82 is placed at Rs. 17,417 crores, which represents an increase of 15.3 per cent over the Annual Plan out of Rs. 15,109 crores for 1980-81. The sectoral allocations have been made keeping in view inter alia the imperative need to augment infrastructural facilities, increase domestic capacities in critical areas and to maximise the growth potential of the economy. The sectors which have received high priority include energy, transport, irrigation, steel and fertilizers. In view of the crucial importance of energy from the point of view of reducing dependence on imported oil as well as for sustaining accelerated development of the economy, the Plan outlay for the energy sector (power, petroleum and coal) has been stepped up by more than 12 per cent each. On the whole, the above three infrastructural sectors account for nearly one half of the total public sector Plan outlay for 1981-82. Utmost emphasis has been laid on speedy completion of the on-going projects so as to secure early returns. Adequate provision has been made for such projects while new investments have been provided for on a selective basis. Considerable importance has been attached to removing infrastructural constraints and securing fuller utilisation of the existing capacities.

In view of the imperative need to keep the inflationary pressures under check, the scheme of financing the public sector Plan relies primarily on the budgetary sources of the Central and State Governments and internal resources of public enterprises. The deficit at the Centre for 1981-82 has been kept at Rs. 1539 crores, which is less than the Revised Estimate for 1980-81. In view of the prevailing inflationary situation, every effort will have to be made to limit deficit financing to the budgeted level.

Keeping in view the key objective of alleviating poverty and securing definite improvement in the income levels and living conditions of the poorer and the weaker sections, the Annual Plan 1981-82 gives high priority to the Integrated Rural Development Programme and the special area and beneficiary-oriented programmes for the target groups included in the Sixth Plan.

The outlay for the Minimum Needs Programme has been increased from Rs. 917 crores in 1980-81 to Rs. 1007 crores in 1981-82.

A new deal for self-employed has been adopted for giving necessary facilities for training (e.g. through TRYSEM), credit marketing and general guidance. A decentralised strategy for employement generation and manpower planning through district level Manpower Planning and Employment Generation Councils has been designed. At the Centre a National Level Guidance Committee for self-employment has already been set up to give concrete shape to this policy for promotion of self-employment during 1981-82 itself. Steps to provide necessary facilities for training, credit, marketing and guidance are being taken through various Central and State Agencies.

The area under irrigation is envisaged to increase by 2.63 million hectares in 1981-82 as against the achievement of 2.47 million hectares in 1980-81. Production of pulses is proposed to be stepped up through extensive use of newly developed high yielding varieties and increase in the area under cultivation through inter-cropping and mixed cropping.

On the assumption of normal monsoon, the Annual Plan envisages the following targets of output for 1981-82 in respect of major agricultural crops:

	1980-81 Anticipated Output	1981-82 Targets
Foodgrains (million tonnes)	133	138.5
Oilseeds (lakh tonnes)	102	112
Sugarcane (million tonnes)	152	182
Cotton (lakh bales)	79.8	84
Jute & mesta (lakh bales)	83	84

The installed power generating capacity is proposed to be increased by 3179 MW in 1981-82, taking the aggregate installed capacity to about 36,000 MW. This, along with the continuation of concerted efforts to improve the performance of the power stations, is expected to lead to total power generation of 134 billion units in 1981-82, representing an increase of about 13 per cent over the 1980-81 level.

The production of coal is targetted to increase to 121 million tonnes in 1981-82 compared to 114 million tonnes in 1980-81.

The production of crude oil is proposed to be increased to 16.84 million tonnes in 1981-82 as against 10.5 million tonnes in 1980-81. The through-put target for the refineries for 1981-82 has been placed at 32.42 million tonnes against the estimated level of 25 million tonnes for 1980-81.

The general revival of the economy, the total revenue earning traffic on railways is envisaged to increase to 215 million tonnes in 1981-82 against the estimated level of 195 million tonnes for 1980-81.

The Annual Plan for 1981-82 places considerable emphasis on accelerating the tempo of industrial investment and growth. Besides, utmost emphasis is being placed on fuller utilisation of the existing capacities, the improvement in infra-structural facilities mentioned above will contribute materially to this.

The rate of growth of industrial production is expected to pick up significantly.

Selected Targets

Industry	1980-81 Anticipated Achievement	1981-82 Targets
Coal (million tonnes)	114.0	121.0
Lignite (million tonnes)	5.1	5.8*
Crude Oil (million tonnes)	10.52	16.84
Saleable steel (million tonnes)	7.78	8.77
Cement (million tonnes)	18.5	22.0
Fertilisers ('000 tonnes)		
(a) Nitrogenous	2150	3200
(b) Phosphatic	830	925
Paper and paper board ('000 tonnes)	1110	1200
Newsprint ('000 tonnes)	48	70
Commercial vehicles ('000 units)	71	85
Sugar (million tonnes)	5.2	6
Vanaspati (lakh tonnes)	7.47	7.75
Consumer electronics (Rs. crores)	234.5	295
Industrial electronics (Rs. crores)	145	175

Relates to Neyveli Lignite Corporation

The overall growth in the industrial production is targetted at 8 per cent.

On the basis of physical output levels envisaged for 1981-82 in respect of key commodities and for selected sectors, the economy is expected to register an overall growth rate of 4.5 per cent in G.D.P. in 1981-82 over and above the growth rate of 7 per cent achieved in 1980-81. Agriculture is expected to show a modest growth; this has to be viewed in the context of a substantial increase in agricultural production in 1980-81. However, marked improvement is expected both in mining and manufacturing sectors as well as in electricity generation.

The gross domestic savings as a proportion of GDP are estimated to have improved from 21.2 per cent in 1979-80 to 22.5 per cent in 1980-81, mainly as a result of a significant increase in GDP in 1980-81. Taking into account the inflow from abroad, the rate of gross capital formation is estimated to have improved from 21.0 per cent in 1979-80 to 24.3 per cent in 1980-81.

The arrivals of wheat, gram and other rabi cereals are expected to have a salutary effect on prices in the immediate future. However, there are certain unfavourable factors too. The infrastructural constraints, although less severe, still continue to operate. Besides, there is an imbalance between demand and supply in the case of certain essential commodities like sugar, edible oils, pulses, steel and cement. The international inflationary environment and the propsects of a further increase in the international price of oil and certain other essential imports have also to be kept in view. While, therefore, it may not be possible to immunise the economy from the inflationary pressures, it could be of utmost importance to keep them under strict control

The balance of payments will continue to be under strain in 1981-82. The import bill is expected to increase further. Taking into account the balance level of exports and net invisible receipts, the balance of payments is expected to show a sizeable deficit which will have to be covered through external assistance and other means. The position will have to be kept under constant watch and appropriate measures will need to be taken to cover the emerging balance of payments deficit during the course of the year.

Chinampa System of Cultivation

TRADITIONAL farming in developing countries can be both ingenious and educational and, moreover, usually has the virtue of being ecologically sound, putting little strain on the environment. One such is the *chinampa* system of cultivation found in Mexico.

A chinampa consists of small plots built up from soil containing organic debris—animal and vegetable—and aquatic plants, especially the nitrogen-rich *Azolia*, the whole mix reinforced by nutrient-rich mud excavated from the bottom of the water channels that surround the plots. The plots are regularly re-enriched with organic material from the channels.

At the heart of the system are the curiously formed seed beds known as *almacigos*. Small in size, only two by four metres, they are made from mud and organic fertilizer taken from the water channels. The beds are cut into little cubes called *chapines* into each of which the *chinaperos* (farmers) insert one or more seeds of the desired crop. When the seedling is sufficiently developed it is transplanted in the selected field complete with roots and its enclosing mud cube which is of course the fertilizing element.

Production of chapines goes on throughout the year and some are even sold in local markets. The chinampa is by its very nature a method of agriculture which is labour-intensive, but this can be a positive advantage in many tropical countries where the supply of labour outstrips demand for it. Mechanization isn't always the answer; it may be socially more acceptable to employ 5,000 labourers with shovels to build an earth dam than 20 mechanics driving 20 bulldozers.

The UNESCO's Man and the Biosphere Programme (MAB) scientists decided to experiment in the rain forest regions with the chinampa method as practised in the Valley of Mexico, in four selected areas. The experiment was a complete success. One area, in Tabasco state, consisted largely of semi-evergreen rain forest and swamps, and it was from swamp material, rich in nutrients, that the chinampa fields were constructed, while water for the irrigation channels came from the same source.

Within a few months a variety of high-yield crops were growing, including vegetables, beans, corn and young trees. In 1976 the scientists handed over the experimental site to local farmers who not only continued to cultivate it along chinampa lines but have since enlarged it using their own resources.

At Chiapas where the irrigation water was drawn from a nearby river and the chinampas made with litter from the adjacent rain forest, the results were equally satisfying. Ample labour was available at the sites and no mechanical aids were employed.

This MAB project has demonstrated that transfer of experience can work and moreover has revealed that in the ancient chinampa system of self-sufficient method of agiculture of Mexico there is a low-capital labour intensive and self-sufficient method of agriculture that could be applied elsewhere in tropical lands, particularly in areas where water is plentiful

(*Unesco Features*)

Waste Water for Food and Pulp Industries

A two-stage waste water treatment process which can purify water high in carbohydrates and proteins to more than 99 per cent while at the same time transforming organic pollutants into valuable methane gas has been developed in Sweden. In the first stage of the system called Anamet, anaerobic inorganism are used to convert 80—90 per cent of oxygen-consuming pollutants into methane and carbon dioxide gas, which naturally separate themselves from the water. No energy and virtually no nutrients or chemicals are needed and the methane contains more energy than is used in the process for pumping and aeration.

The second stage in the system is aerobic and often raises the degree of purification to above 99 per cent. Only aeration energy is needed to eliminate the remaining 10—20 per cent of the original COD material and no extra nutrients are needed. Surplus sludge is returned to the anaerobic stage to enhance bacterial activity, leaving only a small amount of mineralized sludge as waste product.

An Anamet bio-gas plant will start in Kenya next autumn, treating waste water with a daily COD (Chemical Oxygen Demand) of 3 tons. Gas production will correspond to close on 5 000 tons of fuel oil yearly, or 10 times the energy consumed by the Anamet Plant.

While the Anamet process has been in use for some time in food and fermentation industries, recent laboratory and pilot plant tests have proved it to be suitable also for pulp, paper and board industries,

(S.I.P.)

Merchant mill, Bhilai Steel Plant

Cover Story

Why is Madhya Pradesh Backward ?

V.T. Joshi*

WHY has Madhya Pradesh remained a backward state in spite of its fantastic natural resources ? Ask any discerning observer. Pat comes the reply : "It is a millon dollar question".

Indeed Madhya Pradesh is a living paradox of poverty amidst plenty. It is also a paradise for those who revel in statistics. For instance, the state is said to be endowed with 15 per cent of the country's manganese ore, 23 per cent each for coal deposits, limestone and phosphorite, 24 per cent of iron ore, 28 per cent of Bauxite, 39 per cent of dolomite, and 100 per cent of diamonds. That is, all the diamond mines in the country are located in M. P. (Panna). The latest surveys have established the occurrence of appreciable quantities of uranium.

To understand the tragedy that is Madhya Pradesh one must go through a maze of tiresome statistical data before arriving at its causes. The chief among these causes is the lack of a dynamic, dedicated leadership which has resulted in the plague of political instability over the past two decades.

A huge sprawling State with low density of population and poor communications, in area Madhya Pradesh is the largest in the country (4.43 lakh sq. km or about 14 per cent). In population it is the sixth biggest state (52 million with more than a third being SCs and STs. It has 40 lakh head of milch cattle or eleven per cent of the country's total. Yet milk production is far from satisfactory. Food production has substantially increased to more than 120 lakh tonnes in a normal year, thanks mainly to the increase in area. But productivity has remained stagnant for over a decade and is far below the all-India average in respect of most cereals as well as cash crops.

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Madhya Pradesh has seven major river systems and a network of tributaries. But the irrigation percentage is pitifully low around 12 to 14.

Its luxuriant forest wealth is the most precious gift of nature, covering one-third of its area. Indiscriminate felling has however done a lot of harm even while these resources remain untapped in a systematic, productive endeavour.

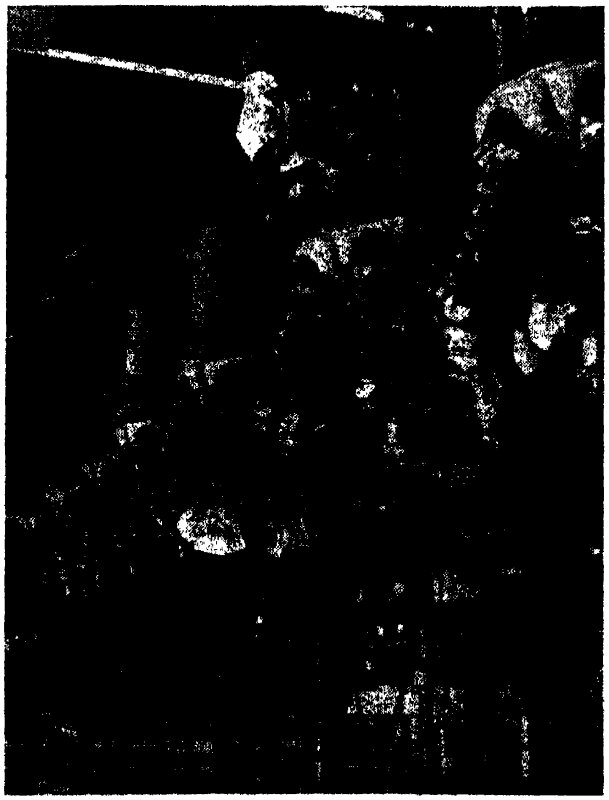
With poor road and rail communication, unsteady power generations and other infrastructural deficiencies, rapid industrial development is still a cherished dream.

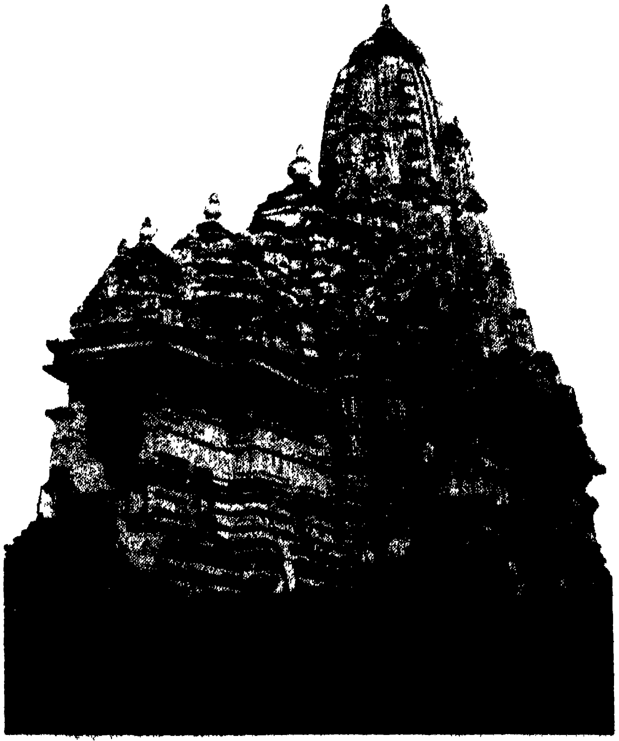
Nightmare

The cumulative result of all this and much more is however a nightmare. Nearly 60 persons in every hundred live below the poverty line. There is mounting unemployment as seen in thousands of applications that are received in response to every advertisement for even low paid jobs. The annual per capital income is Rs. 828 as against the all-India average of Rs. 1,379. These are the official figures at current prices (1979-80). In real wages or at constant prices, the income is much less.

A recent authoritative official document, for instance, bemoans that the per capita income in Madhya Pradesh has never really been high. Even in the best year (1971-72), at Rs. 510 (at 1970-71 prices), it was less than the all-India average of that year (Rs. 627) by almost 19 per cent. In the worst year (1979-80), at Rs. 376, it was only about 55.5 per cent of that year's national average (Rs. 678). Not only is the level of per capita income low, but it has been fluctuating a great deal. In this decadal spread, it has fallen from a high of Rs. 510 to a low of Rs. 376—a fall of some 26 per cent and has been hovering around Rs. 478 per annum.

A view of the Aluminium Plant at Korba (*Above*)
Bharat Heavy Electricals at Bhopal (*below left*)
Khandariy Mahadev Temple, Khajuraho (*below*)





A folk dance ensemble of Madhya Pradesh giving a performance

Lady pickers looking for diamonds at Panna Diamond Mines.

The Sixth Plan outlay for Madhya Pradesh is Rs. 3800 crores. This is about Rs. 729 per capita expenditure for five years or about Rs. 146 per annum. The outlay for the 5 year period 1975-80 was only Rs. 1,928 crores, yielding a 5—year average per capita outlay of Rs. 419 (on the basis of the estimated 1975-76 population) or an annual average of Rs. 84 per capita. It is unlikely that these levels of investment will result in any significant increase in the present level of per capita income in the foreseeable future.

The dismal implication of all this is best illustrated by a reference to a relatively simple and seemingly inocuous field. The number of radio licence last year was, for instance, a little over nine lakhs—or roughly about 1800 radio or transistor sets per lakh of population as against the all-India average of well over 3,000. According to official statistics, there were supposed to be 1,527 television licences in 1979—or 3 T V. sets per lakh of population as against the comparable all-India average of 141 sets. But it is common knowledge that T.V. in Madhya Pradesh is a myth or a mirage. The only T V. facility available was in parts of Chattisgarh districts in easter M. P. as part of the year-long SITE programme organised through an American Satellite in mid-seventies. Later a rickety skeleton service was introduced in Raipur, the home town of the then Information and Broadcasting Minister, Shri V. C. Shukla, which is an apology for T.V. Nowhere else in the whole state is there even a pretext of it.

A land-locked region, Madhya Pradesh is surrounded by seven other States some of which are economically well advanced politically more important like Maharashtra and Gujarat or Uttar Pradesh and Bihar. Its economy is predominantly agrarian and rural. Eightyone out of every hundred people live in villages. Out of the 45 districts as many as 36 have qualified for being categorised as "industrially backward". The farm sector contributes nearly 48 paise in every rupee of the state income while mining and industry accounts for 26 paise. Nearly 81 per cent of the total work force is engaged in agriculture and allied activities—compared with the all-India figure of 72 per cent. There are 941 women for every one thousand males in the total population of 5.2 crores, according to 1961 Census. Though there is a slight drop in the growth rate recently, the population rose by nearly one crore in the past decade (1971-81). The present literacy percentage of about 28 is much less than the all-India average of 36, and puts Madhya Pradesh well below several other states in the country.

Disparate Elements

Geographically, Madhya Pradesh is formed of distinct and disparate regions which have refused to be integrated emotionally and otherwise even after 25 years of its formation. Each of them has its own distinctive characteristics in the matter of its history, climate, soil, cropping pattern, density of population or the mores and dialects of its people. To break the barriers between these far-flung regions and their people, and to bring about a measure of homogeneity required for development, at least one economist has suggested that transport and communications must get a priority over everything else including even irrigation and power.

As things are, dacoit-infested Bhind and tribal Bastar have not mixed well. So also fertile Malwa and poverty-stricken chunks of Chattisgarh, Mahakoshal and Vindhya Pradesh. Not even Bundelkhand and Baghelkhand within Vindhya Pradesh. Add to them the social and economic struture which continues to be predominantly feudal despite democratic forms. And you get a matrix which is hardly conducive to rapid economic development. On the contrary, it is ideal for low level competitive politics. This has resulted in a passing parade of Chief Ministers—13 of them in 25 years.

(*Continued on page* 27)

Wangoo bridge over river Manipur connecting the Eastern and Western portions of Southern valley.

Development of Transport and Communication in Manipur

Y. Surchandra Singh*

SINCE the inception of the era of planned development of the country special efforts have been made for the development of a good transport system in Manipur. The share of Plan investment in Transport and Communication during the 1st, 2nd, 3rd, 4th and 5th Five Year Plans was 72.3 per cent, 35 per cent, 39.3 per cent, 40.7 per cent and 22.2 per cent respectively. Now for the Sixth Plan Rs. 35.50 crore or 15 per cent of the total allocation of Rs. 240 crore, is earmarked for Transport and Communication sector showing a slight reduction in terms of emphasis given to this sector. Even then considering its share in the past the allocation of Rs. 35.50 crore is not a small one. The special emphasis given to this sector in the previous plans was because of the important role this sector had to play in the development of the State's economy. The pattern of investment in this sector during different plans is presented in table I on next page.

It is clear from this table that till the Fourth Five Year Plan maximum priority was given to the development of transport and communications—its share being around 40 per cent and above. No other sector of the economy could till date share 40 per cent of the plan investment. In fact, hardly any State in India might have given such importance to this sector.

During 30 years of planning considerable progress has been achieved in the development of road system in the State. Now the State has road network of 3133 km. built and maintained by its PWD besides the National Highways and roads under the North-

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Table I

Plan investment in Transport and Communication in Manipur during different plans (in lakh rupees)

Sl. No.	Item	1st plan	2nd plan	3rd plan	Adhoc plan	4th plan	5th plan	Adhoc plan	6th plan
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1.	Total Plan investment (in lakh rupees)	012.56	596.93	1281.83	719.89	3100.00	6661.91	6369.83	24000.00
2.	Plan investment in Transport and Communication (in lakh rupees)	74.17	208.90	503.23	316.86	1260.00	1480.60	1303.78	3550.00
3.	Percentage of Investment in transport and Communication	72.3	35.0	39.3	44.0	40.7	22.2	20.5	14.8

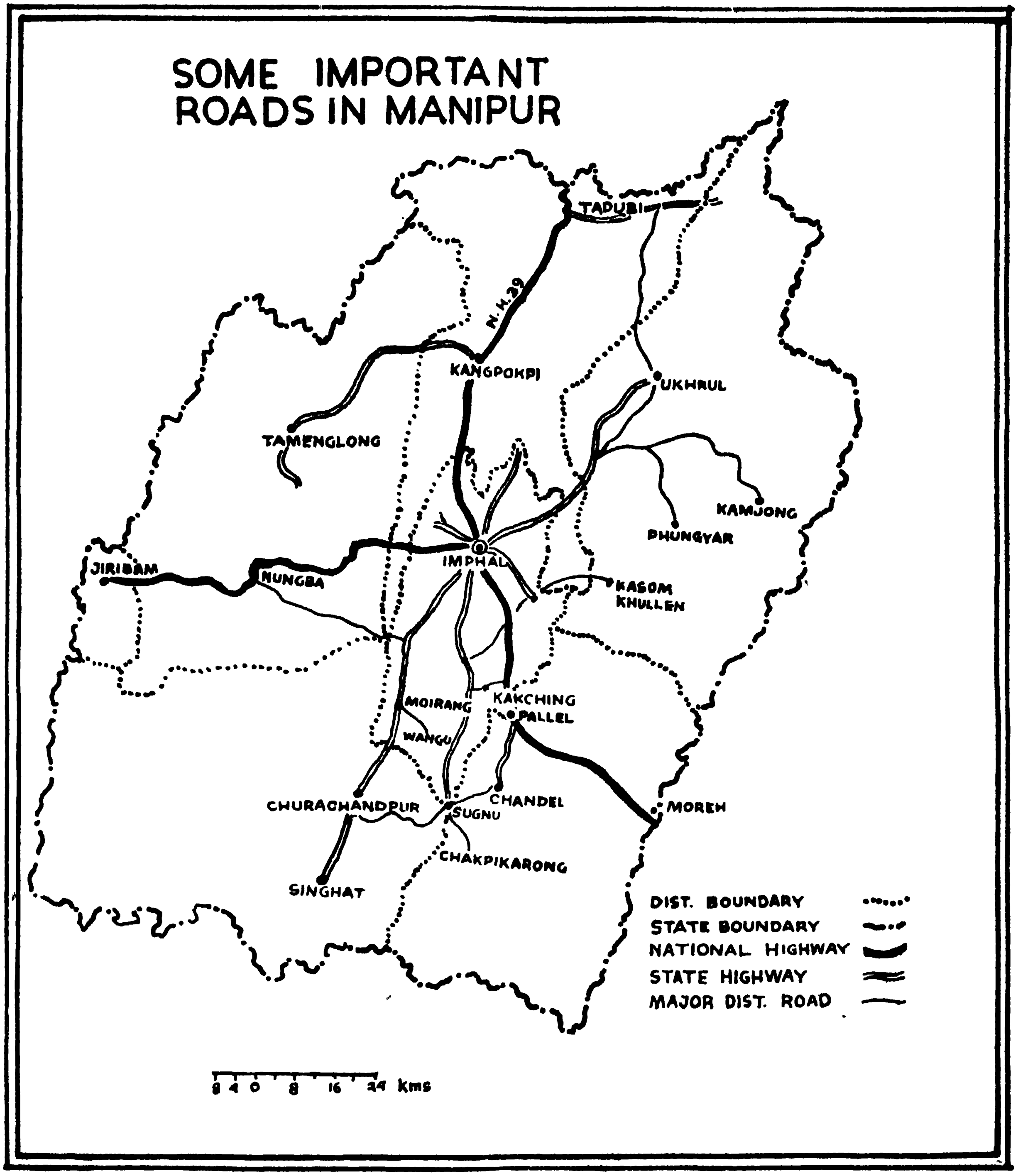
Eastern Council and municipal committees. Motor vehicles/buses are found plying to all the District Headquarters. Of the 25 sub-divisional Headquarters 22 were connected by an all-weather road as on March 31, 1980.

Of the 3133 kms. under the PWD 1433 km. are surfaced roads and the remaining 1,700 km. unsurfaced. The road density per 100 sq. km. of area in the State is as low as 14 km. against 40 km. for the whole of India.

Besides the State PWD, road development programmes have been taken up by other agencies like North-Eastern Council, Border Roads Organisation and local bodies. The North-Eastern Council took up the construction of the road connecting Tamenglong-Khonshang-Jiribam to Churachandpur-Aizawl road. Pavement of the Tamenglong-Khonshang road (42 kms.) would be completed by it during the Sixth Plan. The other roads which are to be improved during the Sixth Plan are (i) Tadubi-Pfutsero-Chedoba road and (ii) Tamenglong-Laishan road. The Council will also take up the construction of Thanglon-Sinzawl-Khazawl road which covers both Manipur and Mizoram. Most of these roads constructed by the North-Eastern Council are of inter state-regional importance. Besides the above, other four roads Ukhrul-Sansak, Sansak-Tengnoupal, Moreh-Huine-Chassad-Phaisad and Gawattawai-Kachair which are of economic importance are being executed through Boder Roads Organisation. Local bodies are also taking up various road development programmes.

During the last 30 years efforts have also been made to connect villages by roads. By the end of 1980-81, 948 villages had been connected through the construction of 1818 km. of inter-village roads and 290 km. of other District roads. However, considering the local requirement as also the develop-

Imphal-Dimapur Road is the life line of Manipur State



SOME IMPORTANT ROADS IN MANIPUR

ment taking place in other parts of the country it can be said that the progress made in the construction of roads connecting villages in the state is poor. Of about 2,000 villages 1952 still remain to be connected by road.

During the Sixth Five Year Plan (1980—85) a substantial amount is earmarked for the development of roads in the State. During this quinquennium an additional road-length of 618 km. is expected to be constructed and the total road length would reach 3751 kms. of which 2161 km. would be surfaced and 1590 km. un-surfaced. In fact in 1980-81 alone an additional road length of 169 km. was constructed and the total road length under the State PWD has increased to 3302 km.—1508 km. surfaced and 1794 km. unsurfaced. The New Cachhar Road had also been declared as National Highway during 1980-81.

Though the achievements during different Plans were laudable the State still continues to suffer from transport bottleneck in its efforts for a rapid economic development. There is neither railhead nor inland waterways system. The nearest railhead is located at Dimapur at a distance of about 205 km. from Imphal. As such, road transport is the only means of transport available in the State. Considering the hilly terrain of the State, the road transport has also to play a major role in years to come. At present, National Highway No. 39 and the new Cachhar road are the only two roads connecting the State with the rest of the country. These two roads are also frequently disturbed due to landslides during rainy season. During periods of such road blocks, prices of important commodities in the State shoot up steeply. Within the State, too, though the District Headquarters like Tamenglong, Ukhrul and Chandel are connected, the condition of roads is below the standards of State Highways. The subdivisional Headquarters, Henglep, Tousem and Kassom Khullen still remain to be connected by all weather roads. Substantial work, therefore, remains to be done for improvement of the existing roads. There are also a number of weak and missing bridges which have become handicaps in the movement of trucks, buses etc.

The road development programme in the past seems to have been performed hap-hazardly or on *ad hoc* basis. In some cases construction or improvement of roads was done on piece-meal basis. As such at a particular point of time the full length of a particular road could not be used for smooth movement of vehicles.

In fact, investment in roads was sometimes found to be without having any long term perspective. The result was that the investment became almost wasteful. Pallel to Chandel road, Kakching Lamkhai to Sugnu road are some of the examples of such cases. Pallel to Chandel road connects the district headquarters-Chandel. An investment of about Rs. 30 lakh has already been made on the 18 km. stretch of Pallel-Chandel road. But it has never become properly useable for plying of vehicles and needs frequent repairs. This is perhaps, because of the thickness of the crust of the road being 3 inches instead of the required 18 inches and the intensity of traffic. The crust of the road breaks after a year or two necessitating further investment. Same is the case with some other roads.

No well-defined criteria have been laid down for selecting villages to be connected by roads. Also no consideration is given to the areas of economic importance while taking such decisions. For reasons unknown villages and places of less importance are sometimes given road facility first.

Last but not the least important factor hampering the implementation of road development programme is delay in decision making. For instance, while programme of jobs to be executed or taken up should be decided well before the commencement of the financial year, the usual practice in Manipur is that the Programme Advisory Committee takes the decision only after some months have passed, thereby leaving shorter time for implementation of the programmes. Implementation of works is also sometimes delayed due to pulls and pushes of vested interest. To cite an example the construction of bridges over Nambul River near Khwai Bazar and Imphal River near Loklaobung both in the heart of Imphal town have been completed months ago, but the construction of the approach roads had been unduly delayed.

In the light of the facts narrated above it is recommended that the construction of roads connecting district and sub-divisional headquarters may be completed. Construction of roads linking Sub-divisionad Headquarters and other administrative headquarters and those between villages can be taken up later on. Other roads, the constructions of which has already been started should be completed before new schemes are taken up for execution. Priority should be given to the improvement of the existing roads to make them conform to the standard specifications. Consideration may be given to the need for the establishment of a separate quality control agency to ensure construction of roads according to the specifications laid down for the purpose. Lastly, the road development projects should be taken up strictly under a well defined long-term planning. □

Children's Neurological Centre in Baku

Alexander Nesterov

A children's neurological centre, the largest one in the USSR, has been opened in Baku. It has a hospital for 400 seats and a consultation clinic. The clinic has mechanical therapy, reanimation and post-natal pathology departments.

A unique instrument, Mioton, recently developed by the Soviet specialists calls for special attention. It records on a magnetic tape the biocurrents of a healthy muscle and then reproduces them on a sick muscle, thus enabling the latter to restore the lost functions more rapidly.

Through the electrodes placed around the focus of the disease, medicines are introduced hypodermically, causing no trouble to children who are usually afraid of injections.

—(*Soviet Features*)

Industrial Development of Mizoram

Problems and Prospects

D.D. Mali*

MIZORAM, the land of the Mizos or highlanders, occupies the north-eastern corner of India. Till 1972, it was a district of Assam. The name of Mizoram was given to it when the district was separated from Assam and elevated to the status of a Union Territory on January 21, 1972. The strategically situated territory is flanked by Bangladesh in the West, Tripura in the south, Manipur and Assam in the north and Burma in the East. It has 630 miles long border with Bangladesh and Burma.

The total geographical area of the territory is 21,087 sq. km. According to the 1971 census, the total population of the territory is 2,32,390. The density of population is 16 per sq. km. as against the all-India average of 178. The percentage of literacy is about 54 which is next to Kerala, Delhi and Chandigarh.

Resources

The main resources of Mizoram are agriculture, including horticulture, forests, sericulture and livestock breeding.

Agriculture and Horticulture: Agriculture is the primary occupation in Mizoram and 83.9 per cent of the total work force is engaged in it. The principal crops grown are rice and maize, followed by cotton and sugarcane. The other crops are like chillies, sesamum, tobacco, potato, sweet potato, ginger and soyabean. Out of 21 lakh hectares of land only 67,000 hectares representing 3.2 per cent of the total geographical area are under cultivation and only about 5000 hectares or 0.47 per cent of it are under permament cultivation. Further, 80 per cent of the land is under shifting cultivation.

The agro-climatic conditions of the territory are suitable for development of horticultural crops. The important horticultural crops are pineapple and orange. Mizoram Government has set up a Fruit Preservation Factory at Vairengte for using the horticultural crops.

Forests: Practically the entire territory is covered with dense forests. Important forest products are timber, bamboo, cane and agarwood. The availability of timber is estimated at 1.3 lakh cft. out of which annual utilisation is about 10 per cent. Availability of cane and bamboo is estimated at 10 million and 0.82 million runing meters. Their average annual utilisation is 20 per cent and 30 per cent respectively. Annual production of agarwood is estimated at 13,466 kg. Besides these, there are large quantities of cinnamon leaves, broomsticks, nageswar flower and thatching grass. The availability of forest resources suggests the possibility of setting up paper and pulp unit, saw mill, wood seasoning plant, plywood manufacturing unit etc.

Sericulture: The climatic conditions and the fertility, moisture-holding capacity and optimum acidity of soil are very suitable for rearing silk-worms and growing food plants. More than 600 families are engaged on Sericulture. But it is still considered as a subsidiary occupation. The administration, both independently and in collaboration with North Eastern Council has initiated an ambitious plan for sericultural development in Mizoram.

Animal Husbandry and Poultry: Mizos are mostly non-vegetarian. Pork and chicken form almost an essential part of their daily diet. They rear cattle, pigs and poultry mainly for meat. According to the livestock census of 1971, Mizoram has 43,129 heads of cattle including buffaloes, sheep, goats, horses, ponies and pigs and 6,00,625 poultry birds. Although the number of animals in the territory is high, there is hardly any organised piggery or poultry in the private sector. Further, the requirement of the territory cannot be met from the internal sources. About 96 per cent of cattle, 70 per cent of pigs and 95 per cent of poultry products sold in Mizoram markets come from outside. There is, therefore, great scope for development of animal husbandry and poultry farming.

Existing Industries

At present, there is neither large scale nor medium scale industry in Mizoram. The existing industrial structure is predominantly traditional. Weaving is an important household occupation. In every Mizo house there is at least one primitive loom. The products are Mizo Puan (designed cloth), ipte chai (bag) and necktie. Another traditional industry is cotton ginning and spinning. Traditional spinning is, however, fast declining due to competition from mill-made yarn. Mizos are expert in cane and bamboo work. Their cane hat is highly valued and it has a tremendous market potential. Besides the traditional industries and crafts, there are industrial units for oil extraction gur making, tailoring, carpentry, bakery, brick making, knitting and embroidery, bee-keeping and alluminium utensil making, and printing presses, automobile repairing workshops, saw mills rice mills and mechanised bamboo workshops. All the existing industrial units are, however, tiny sector units.

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Industrial Potential

Various organisations and institutions have assessed the industrial potential of the Union Territory in the past. A study of the lists of industries suggested by these organisations and institutions shows that emphasis has been laid more on resource-based than on demand-based industries. This is so, because resources, particularly forest resources, are practically untapped. The potential resource-based industries for the territory are paper and pulp, saw mills, wood seasoning plants, straw board, card board, splint and veener, carpentry, cane and bamboo work, cotton ginning, fruit preservation, oil expeller unit, ginger dehydration plant, hand made paper, vegetable processing, turmeric|chillies powder, bakery unit, citronella cultivation and distillation, sugarcane crushing unit, animal feed etc. The potential demand-based industries are weaving, kniting, automobile repairing workshop, tyre retreading, bricks, chalk crayons, exercise books, washing soap, footwear, garments, printing press, agricultural implements, sheet metal fabrication and barbed wire unit.

The potential industries will mainly be of the tiny and small scale sectors. The demand-based industries suggested are evidently to meet the local demand and not to cater to outside demand. To tap outside market is a difficult proposition. Even the existing units, particularly soap making units are facing severe competition from soap coming from outside market. At present ginger rots and sesamum goes out due to lack of processing facilities. Processing facilities are, therefore, to be made avialable. This will not only help in profitable use of the raw materials but also in extension of cultivation of these crops.

Handicrafts and handlooms of Mizoram have got potentiality of getting outside market. The Mizo puan is not only beautiful but also durable. Likewise the Mizo neckties with tribal motifs on them can easily capture the eyes of buyers. The cane and bamboo work are simply beautiful. And there is scope of extension of these crafts.

Constraints

The territory offers scope for development of industries mainly based on available raw materials. However, industrial development is not taking place at the desired pace. The reasons for this are many and varied. Mizoram does not possess the necessary infrastructure required for industrial development. Power which is one of the most important prerequisites for industrial development is extremely inadequate. Transport and communication facilities are inadequate. The territory has about 2000 kms. of roads. The road to Silchar which is also the railhead for Mizoram is the only road connecting Mizoram with the rest of the country. There is scarcity of water. This will be evident when one goes even to Aizawl, the Capital of the territory, and sees how people store rain water for household use. There is lack of adequate finance for industries. Two banks, namely, the State Bank of India and the United Commercial Bank have opened their branches in Mizoram. But the banks lack qualified persons to process loan applications. There is also lack of technical and managerial personnel. Furthemore, local entrepreneurship is yet to develop to take up the challenging task of industry. Besides these constraints, the geographical location of the territory, rugged and hostile terrain and disturbed political condition also act as hurdles for industrial development of the territory.

The Government of Mizoram has taken a number of steps for the removal of constraints for the industrialisation. Besides the Directorate of Industries and the District Industries Centres, there is Mizoram Industrial Development Corporation which has been set up with the main objective of industrialising the territory. The Directorate of Industries has also started the only industrial estate at Sairang. A Rural Industrial Training Centre is being set up in collaboration with the Hindustan Machine Tools. The combined efforts of the Government and the people will help in putting Mizoram on the industrial map of the country.

Larsen & Toubro's Impressive Growth

FOR LARSEN & TOUBRO LTD. 1980-81 has been a year of significant achievement. Due to higher capacity utilisation of production facilities, improvement in systems and methods of production, greater efficiency and cost control the working results of the company proved to be satisfactory.

The consolidated group sales turnover amounted to Rs. 2,033 million as against Rs. 1,781 million in the previous year. The L&T earned a dividend income of Rs. 7.90 million as against Rs. 10.36 million in the previous year from its subsidiary and associate companiess. The sales reached Rs. 1,447 million as against Rs. 1,229 million in the previous year—an increase of 18 per cent. Production for the year at sales value amounted to Rs. 1,110 million.

The company executed orders for some critical equipment such as the Deck Plate for a 100 MW Researcher Reactor of Bhabha Atomic Research Centre; spray-type deaerators for a Thermal Power Station in collaboration with STORK, Netherlands, aluminium columns for concentrated nitric acid plant made from 99.95 per cent purity aluminium.

The company received the G.S. Parkhe award from the Mahratta Chamber of Commerce & Industries for its R&D work on Mist Eliminator for sulphuric acid and other chemical plants. For the third year in succession they won the "Good Industrial Design" award at the Hanover Fair held in West Germany. This is indeed a noteworthy achievement. The award winning product this year is the TQ type draw-out motor control centre, which marks a new generation in Switchboard design.

Meeting the Energy Crisis

P. K. Jena*

IN order to ensure the survival of our civilization to the next century, we have to take a complete stock of our energy resources both commercial and non-commercial, look into the consumption pattern make judicious utilisation of non-renewable energies like fossil fuel and develop processes for tapping energy from new sources. Today, all over the world, there is an energy crisis, particularly for petrol, diesel and natural gases. The commercial energy from coal, oil and electricity is at present steadily replacing the non-commercial energy obtained from fire-wood, agricultural wastes and animal dung. The rate at which both the developing and developed countries are consuming the commercial energy, the earth's fossil fuel energy bowl would be practically emptied within another century. The nature's reserve of coal, oil and natural gases are imbalanced and it so happens that it is in the favour of the developed nations.

Forms of Energy

In India, energy, is consumed in a variety of forms starting from burning agricultural wastes and animal dungs to obtaining electricity from nuclear reactors. Coal, oil, hydro and nuclear power are the main sources of our commercial energy. These account for about 60% of our total energy consumption today and 40% of the energy comes from non-commercial sources like agricultural wastes, fire-wood and animal dung. The nation's increasing demand of energy during the future years *vis-a-vis* resources available with us with respect to commercial energy is indeed alarming. But there are ways and means to overcome this crisis and march ahead in our industrialisation programme while developing socio-economic condition of our people. We may have to reserve such energy resources only for the premium purposes for which these are uniquely suitable and develop alternate sources of enegy from renewable resources like sun, forest, wind etc. for meeting the energy demands mostly in houses, offices and small industries.

In developing countries like India, firewood, agricultural wastes and cattle dung are the most important non-commercial fuel. About 3|4th population of this country live in vilages, and depend mostly on this type of energy. It would, therefore, be our first and foremost task to develop these sources of energy and popularise amongst the villagers to use them scientifically.

It has been estimated that in 1975-76, 133 million tonnes of fire-wood were consumed in both rural and urban areas as domestic fuel. With the growth of population and increase in the requirement of these fuels, unless a crash programe of afforestation is undertaken we would lose most of our forests by the end of the century. Here it may be mentioned that while taking up programmes for systematic plantation of fast-growing species in various parts of the country, a culture has to be developed for using charcoal instead of wood as domestic fuel.

In India the cattle population is nearly 237 million producing about 575 million tonnes of dung per annum. This collosal amount of cattle dung with various agricultural and domestic wastes could be utilized to produce biogas through frementation. Though India is one of the pioneering countries in the world in the field of biogas technology, all out efforts should be made to install improved variety community biogas units in the rural areas by using cattle dung, night soil and agricultural and domestic organic waste. This will not only meet most of the energy requirements of our villagers, but will produce very good organic fertilizer and will also check environmental pollution and improve sanitary conditions.

Solar Energy

From the dawn of human civilization, the solar energy has been used in a very limited way for drying food and preserving it. In recent years, scientific processes have been and are being developed in harnessing solar energy for heating and cooling of residential and commercial buildings, chemical and biological conversion of organic materials into liquid, solid and gaseous fuels, and generation of electricity. In this regard, a large number of research efforts are going on in India to develop suitable processes for getting heat and electricity from sun to cook our foods, obtain fresh water, heat water, dry vegetables, store perishable food, irrigate lands through solar pumps and light the houses through solar power units.

A considerable portion of our energy required for our day-today living is derived from animal power. We use buffaloes, bullocks for ploughing our lands and transporting food grains and other materials from place to place. More efforts should be made to improve and popularise animal breeding to provide better quality cattle and also re-design our ploughs and carts so that we can get more animal power with better efficiency.

In coastal regions where generally the wind velocity and tidal waves are quite high, in most part of the year we could harness a substantial amount of energy from the wind and sea waves.

Fossil Fuel

While conserving the fossil fuel we should create more and more resources for getting hydal power from rivers by building dams. We should get nuclear energy from unranium, plutonium and thorium.

The thorium reserves are quite high in the country and development of thorium-based uranium-233 nuclear reactors has, thus, a great future. We should also develop technology for harnessing geothermal energy. In India a number of research organisations are actively engaged in research and developmental work for developing new sources of energy and improving the efficiency of the conventional processes for utilisation of energy. In this regard, the CSIR Regional Research Labouratory, Bhuvaneswar, has undertaken a number of projects like development of solar-grade silicon, utilisation of coal dust, development of efficient oilfire burners and hydraulic transportation of coal and minerals.

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Besides taking up research programmes for developing unconventional energy resources, efforts could also be made to produce alcohol to replace petrol and produce hydrogen at a cheaper rate for fuel purposes. It is very heartening to note that the Government of India has taken up a number of priority projects meanwhile for locating new sources of fossil fuels in the country. While developing new sources of energy and utilising the fossil fuel, we should, however, not forget the environment and ecological aspects of this good earth.

(*Courtesy : All India Radio*)

Re-Birth of Panchayati Raj in Andhra Pradesh

V. Sripati Rao*

THE Panchayat Raj system has been revitalised in Andhra Pradesh after nearly ten years of lapse. On the 27th May, 1981 the first phase in Gram Panchayati elections were conducted. Unlike previous occasions, the Gram Serpanch, and Panchayati Samithy Presidents were elected directly by the electorate. The voting age was lower from 21 to 18 years, so the number of voters has gone up by about 45 lakhs. The youths of the State demonstrated their faith in the institution of Panchayat Raj. No wonder most of the members elected to these bodies come from this group. Election to Gram Panchayats and Panchayti Samithys were fought on non-party basis, however, elections to Zilla Parishads took place on party tickets.

Gram Panchayat Elections :

Elections were held for 18,931 Gram Panchayats in the State. Due to various technical reasons 619 Gram Panchayats did not go to polls. Voters had to elect as many as 1.68 lakhs of members for the Gram Panchayat bodics. Government by a notification reserved certain number of seats in each Gram Panchayat for scheduled caste, scheduled tribes and for women candidates. This has been done to give proper representation to all classes of people living in villages. Government has made similar reservation even at the level of Presidents of Panchayat Samithis and Chairman's of Zilla Parishads.

Reservation of seats for various classes of weaker sections at the Gram Panchayat level was in the following order :

Category	No. of seats reserved	Percentage
Scheduled Cases	24,556	14.6
Scheduled Tribes	6,653	3.9
Women	44,127	26
Total	75,336	44.5

In addition to the reservation of members of Gram Panchayats, Government had also reserved certain number of Sarpanchas posts also for the weaker sections. The details are in the following order.

Category	No. of seats reserved	Percentage
Scheduled Castes	2519	13.8
Scheduled Tribes	1597	8.1
Total	4116	20.9

Similarly 35.1 per cent posts of the Samithy Presidents were reserved for the Scheduled Castes, Tribes and backward class people. Out of 330 Panchayat Samithis 44 samithis are today headed by Scheduled Castes candidates, 36 by Scheduled Tribes, 33 by backward class people, and one post by a woman.

Another striking feature of the Gram Panchayat elections is that there is new blood throughout the state. Nearly 80 per cent of the people elected to head these institutions are fresh entrants. Only 20 per cent of the posts are held by seasoned hands.

Zilla Parishad

Elections to the posts of Zilla Parishad were held on 7th July in Telengana area and on 9th July in Andhra area. Elections to these posts were contested on party basis. For all the Zilla Parishads barring Nellore District where elections were stayed by court order, Congress (I) nominees were elected. Among the elected Chairmen of Zilla Parishads all sections of people got representation. Scheduled Castes, Scheduled Tribes, Minority Community, Muslims, and Women find place to head these august bodies. Chief Minister of Andhra Pradesh has taken special care to see that weaker sections and minority groups in the districts get proper placement and representation in these bodies.

Elections were conducted in a peaceful atmosphere. With the formation of democratically elected units at village and district level the Government will find it easy and convienent to implement welfare programmes meant for the betterment of the weaker sections of society.

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Economics of Electricity

Dr. V. Nagaraja Naidu*

THE financial performance of the State Electricity Boards (SEBs) has attracted the attention of the Government, planners and academicians in the country. Most of the SEBs have been incurring commercial losses in their operations. The total losses of all the Boards amounted to Rs. 103 crores in 1973-74 and to Rs. 440 crores in 1979-80. The cumulative losses of the SEBs between 1980—85 period would be at Rs. 4,400 crores. It is also estimated that if 80 per cent of the losses are wiped out, additional resources to the extent of Rs. 3,500 crores would become available for financing the State plans. If this is achieved the States can mobilise as much as 50 per cent of their target share of additional resources fixed in the Sixth Five Year Plan. Further, in view of the massive investments envisaged in the power sector during the Sixth Plan period, it is very much imperative to take effective steps to reduce substantially the losses of the SEBs so as to finance their own development as well as ease the drain on State's finances.

The SEBs, either by reducing costs and|or by upward revision of tariffs or by a combination of the two can increase the gross surplus and make the required return. The cost control however seems to be impracticable in view of inflation and continuous expansion of the industry. Hence, the tariff level and structure alone reflecting the cost of supply of power can improve the working results of SEBs in the country. The formulation of tariffs so as to generate required revenues should take into account two important aspects. Firstly, the tariffs must reflect the cost of supply of power for different categories of consumers (with due consideration to social obligations). Secondly the tariffs should possess an inbuilt mechanism to absorb the cost escalation without much lapse of time. The first aspect has been widely discussed whereas the cost escalation and tariff revision has not received due consideration. Hence, an attempt is made to focus this aspect for wider attention.

Tariff Revision and Escalation

The Electricity (supply) Act, 1948, requires the SEBs to adjust their tariffs from time to time to keep pace with increase in costs of supply of electricity. The timely revision of tariffs in pace with cost escalations, however, hindered due to the bureaucratic procedural delays and political expediency, since the tariff revision by a SEB requires the consent of the concerned State Government. Hence, there seems to be a much lapse of time in between the tariff revision of SEBs in relation to cost escalations.

The rise in tariffs at long intervals of time cannot enable the Boards to recover the increase in costs in between the revisions in view of continuous hike in costs due to inflation. This, to a great extent, undermines the ability of the SEBs to generate sufficient revenues so as to leave such net surplus as stipulated by the Government of India. For example, in the case of Andhra Pradesh State Electricity Board during 1975—80, tariff revision did not accelrate the revenue even by 10 per cent per year, whereas the cost of coal to the Board was increased approximately by 19 per cent and oil by 40 per cent per year.

Further, interval between two increases makes the hike too high. As such there has been a strong resistence from the consumer as and when tariffs are revised in the country. Instead of occasional spurts in tariff it is better to increase the same by resorting to automatic adjustment clause, so as to be in tune with the increase in operating expenditure. A fuel adjustment clause reflecting changes in the coal and oil costs being the major cost of electric supply, has been introduced in the tariffs in some of the SEBs in India. The drawback of this measure has been that it ignores the cost escalations of salaries, wages consumer service, interest and other establishment charges which are emerging as a major component of costs of supply of electricity. Further, this clause has been provided in the tariffs of only a few SEBs in the country.

Cumulative Index

In place of fuel adjustment clause, there can otherwise be an average escalation cost clause, that would reflect the combined effect of fuel, wages and salaries, consumer service and other cost increases in all the SEBs in the country. A cumulative index of the increase in the above costs can be calculated regularly so as to link up with the tariff increases to the same, whenever the cumulative increase exceeds a certain percentage over the last escalation. Thus an increase in costs can thereby immediately be reflected in the prices for electricity to overcome the present shortages in recovery of costs.

This would enable the Boards to realise the stipulated rate of return in investments and strengthen the investment capacity, for further expansion of this major infrastructural industry for economic development. ☐

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Hill Area Development—Some Issues

Odeyar D. Heggade*

THE hilly regions in India are difficult terrains with severe ups and downs. The agro-climatic conditions and resources vary from one area to the other. The econome undervelopment is the most vital and common feature of all the hill areas. Sub-plans for hill area development are under implementation for the last few years. They are prepared by State planning boards as the sub-plans of their overall Five Year Plans. The different developmental schemes are financed both by Central and State governments.

During the V Plan period, Rs. 236.75 crore were spent on different programmes like creating infrastructural facilities, resource development and utilization etc. Out of this total expenditure, Rs. 119.94 crores and Rs. 116.81 crores were spent by the State and Central sectors respectively and Rs. 55.98 crores were incurred as additional expenditure by North-Eastern Council. This entire expenditure was provided by Central Government as subsidy for the Council. The North-Eastern Council co-ordinates all the development schemes of hill areas in North-Eastern India.In States like Uttar Pradesh, pilot projects for hill area development are implemented. At present in U.P., two such projects are being implemented in Pauri Garhwal and Tehri Garhwal and one in Nungba sub-division of Manipura. The infrastructural, agricultural, horticultural and allied activities undertaken have benefitted 1,20,000 families covering a population of six lakhs. The hill areas of our country are at different stages of transition. Those of north-eastern region are trying to develop the minimum infrastructural facilities whereas the hill belts of western ghats, say in Karnataka, are proceeding towards overall socio-economic transition. Table below shows the allocation of funds and actual expenditure incurred in Western Ghats Plan, Karnataka.

Table I

Outlay and Expenditure from 1974-75 to 1979-80.

(Rs. in lakhs)

Sector	Outlay	Expenditure
Animal Husbandry	64.67	40.07
Horticulture	76.44	79.29
Agriculture	68.16	61.56
Irrigation	99.03	44.31
Forestry	108.61	151.13
Small Scale Industries	48.88	84.18
Tourism	26.63	37.85
Sericulture	38.77	38.77
Sandal Oil	20.00	..
Western Ghats Cell	11.70	10.16
TOTAL	562.89	547.32

High priority has been accorded to programmes like forestry, horticulture, irrigation and small scale industries. Karnataka's Western Ghats Plan covers 40 talukas in the State, which remained until recently highly backward but very rich in natural resources. Different kinds of development schemes have made impressive progress in the recent past. Under the animal husbandry sector, 25 artificial insemination units were established and 749 cross breed bulls were distributed. Financial assistance was extended to 1144 persons for rearing female calves. Seven progeny orchards were established under the horticulture sector. The KSCLD Bank has extended financial assistance for taking up 16,488.32 hectares of general schemes including mixed orchards, land levelling etc. Coconut, coffee and cardamum cultivation was taken up in 1888.30, 338.80 and 226.50 hectares respectively. For sinking irrigation wells and for purchase of pumpsets, 2156 persons were assisted. In addition to these programmes, 33 minor irrigation works, bunding work in 10,860 hectares of land, erecting 14 feet long bridges have been already completed. The Intensive Agricultural Development Programme (IADP) has been introduced in 11,007 hectares of land. The bee-keeping, cashew growing have been encouraged further.

Problems

The problems of planning for hill area development are often intricate and very complex. The general problems which crop up at planning and implementation stages for hill area development may be briefly stated as under :

1. Almost all hill economies have little marketable surplus, because of the subsistence nature of production base in their primary activities. This factor creates the genuine ground for vicious circle of poverty and underemployment in all these areas. This is really a challenge for planning strategy for hill area development and modernisation.

2. In hill areas of Central and North-Eastern regions, particularly, the practice of shifting cultivation is very rampant. The shifting cultivation is low-yielding and resulting in soil erosion, ecological imbalances etc. It is estimated that about 10 centimeters of soil is washed away even from moderate slops in one jhuming cycle in Assam hills. Also it leads to deforestation, change in the morphology of the area, and changes in the strain parameter of the soil mass. Thus any planned effort towards hill area development should effectively curb and gradually eliminate the problem of shifting cultivation for its success.

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3. The data that is required for effective planning about different aspects of development programmes shall be built up. At present the preparation of sub plans for hill area development is often hampered because of the inadequacy of reliable data.

4. Problem of area to be planned is yet another vital issue. In terms of different socio-economic indicators the backwardness of hill areas is measured and chosen for planning. In this process much emphasis however, should be laid upon spatial and sectoral interactions of linkages. In other words it should take into account the process of strengthening the existing linkages and developing them further in terms of appropriate activity pattern and spatial pattern of growth.

5. Problem of building up of a viable transport and communication system is very intricate. It involves the detailed study of the problem areas.

6. Often it is said that identifying and devising the means for developing 'thrust areas of growth' in a hilly region is a crucial challenge for planning hill area development.

7. Many of the hydel power projects and construction of irrigation dams schemes in hilly areas were opposed by the people of the respective areas as detrimental to their welfare. It is claimed that such schemes would lead to ecological imbalances in the concerned areas. The controversies in regard to some medium irrigation projects in Uttara Kannada, Dakshina Kannada and Kodagu districts of Karnataka and the popular controversy about Silent Valley project in Kerala are some genuine instances in this regard. In these areas the opposition for multi-purpose development schemes for river valleys came through organized popular mass movements. Accordingly in some instances the planned project works came to a grinding halt, waiting for resolving the controversies. This amply shows the intricacy of the process of the development of irrigation and power base for the hill areas.

8. The institutional and organizational base for implementing different kinds of development schemes like establishment of suitable co-operatives for marketing and processing the agricultural and forest products, financial institutions, local self-governments are very poor and also highly inadequate. Therefore many of the schemes remain unimplemented and half-implemented because of administrative unpreparedness.

9. Different kinds of development programmes remain mostly unco-ordinated and disintegrated in the wake of poor institutional as well as organizational set up. Thus the expected impact of the development programmes became a distant reality.

10. The implementation of basic services programmes like education and health is often impeded by the lack of availability of personnel. Therefore, the social infrastructural facilities could not be developed properly.

11. The implementation of certain schemes like power and irrigation projects, establishment of industries etc. in hill-regions have created an army of economically displaced persons. Accordingly the displaced persons have been put to many hardships because, the rehabilitation programmes were not efficiently being implemented.

12. The people of hill-regions being generally illiterate more backward, often are highly exploited. Thus illiteracy, ignorance and susceptibility for exploitation makes them more static, depressed and unorganised. Therefore, the development schemes aims at rapid growth with social justice often looked with suspicion and distrust by hill people. Thus, the result-yielding nature of the welfare programmes require long gestation periods.

The hill area development sub-plans are of recent origin. The problems are highly complex. However, a good beginning has been made to bring the isolated hill areas into the national process of socio-economic transition. ☐

Agro-Marketing Corporation For NE Region

THE Government of India has approved the setting up of the North Eastern Regional Agricultural Marketing Corporation. The Headquarters of the Corporation will be at Gauhati. The Corporation sponsored by the North Eastern Council aims at purchasing the marketable surplus of fruits and vegetables to the maximum extent possible through a network of centres at reasonable prices fixed for this purpose.

The Corporation to be known as NERAMC will have an authorised capital of Rs. 5 crores to be entirely financed by the Government of India through the North Eastern Council.

The Planning Commission has approved an allocation of Rs. 5 crores for the Corporation under the NEC's Sixth Plan with an amount of Rs. 1 crore in the annual Plan of 1981-82. The provision will be utilised as the share capital and loan contribution to the Corporation.

Ber Cultivation a Boom for Kandi

THE inhabitants of the Kandi belt of Jammu are now enjoying better amenities of life due to ber cultivation. Every year the ber fruit worth two crores of rupees floods the local market during the season. The surplus fruit is sent to the neighbouring states. The credit for this qualitative production goes to the Research Centre Udhay Wala Jammu (J&K) for introducing the advanced technology in ber culture. Research is in progress to combat prevalent disease and pests attacking this fruit. Ber production has provided a boon to people of Ranjri a tiny village which has more than 10 thousand fruit bearing trees each tree giving one quintal of fruit.

Besides Jammu district, the fruit is also being grown in Kathua, Udhampur and Rajouri districts. The Horticulture Department of J&K state has undertaken an intensive programme of cultivation of ber for the uplift of rural poor in Kandi areas which are without irrigation facilities.

Field Publicity Officer, Jammu

Rice In India

Present Status and Development Strategy

R. Seetharaman*

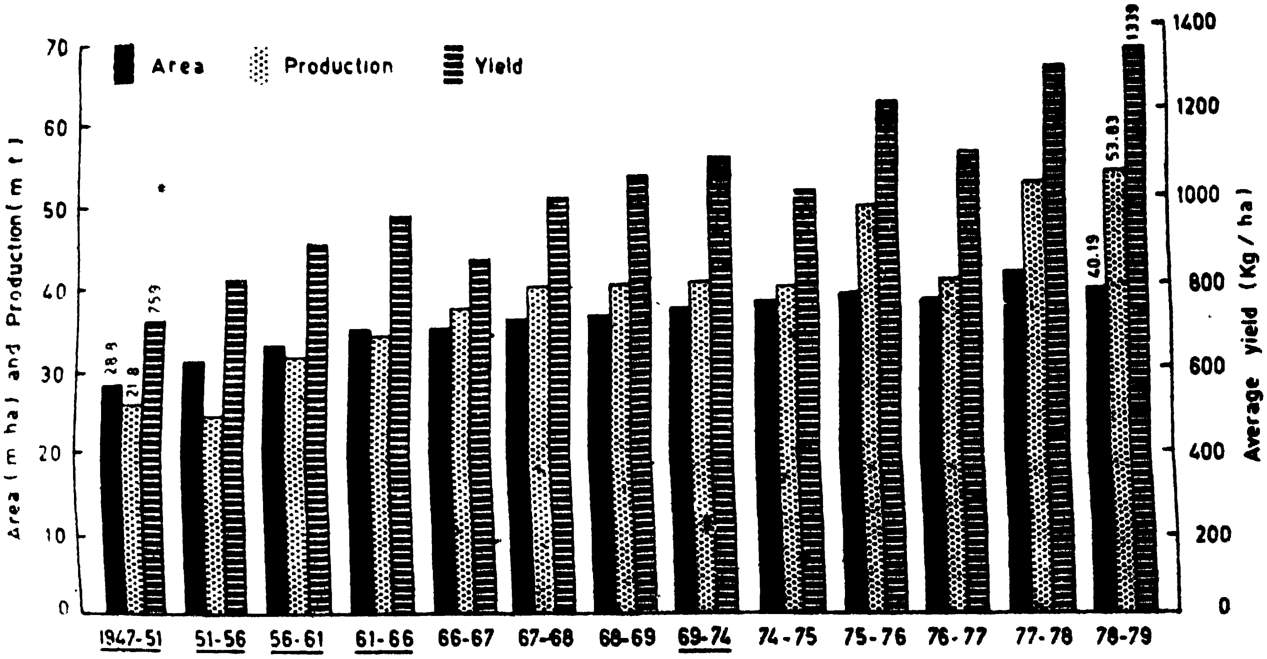
RICE PRODUCTION the world over has received conspicuous attention in the wake of widespread drought and the prevailing food situation. The annual "outlook" reports from national and international agencies influence the world trade and market trends. So much is its impact that individual countries review their stock position and plan strategies that influence export and import policies.

Asia occupies an important position in this production analysis. Asian countries produced 345 million tonnes of the total world production of 380 million tonnes of paddy during 1979. India and China together produced 223 million tonnes that is, 58.7 per cent of total world production and 64.6 per cent of Asian production. In terms of acreage, out of 145 million hectares under rice, India and China together account for 77 million hectares (Asia: 130 million hectares). Productivity-wise the Republic of Korea has a yield of 6.6 tonnes/ha followed by Japan (6.2 t/ha) and Democratic People's Republic of Korea (North Korea, 6.1 t/ha); China records 3.7 tonnes/ha and India 2.0 tonnes/ha.

Area and Production

The major Kharif crop of India is rice. Besides, some States have an additional crop of rice. States like Kerala, West Bengal, Assam, Andhra Pradesh, Bihar, Orissa and Tamil Nadu, grow three crops (termed as autumn, winter and summer) in a year. In 1979-80, the winter crop accounted for 49.3 per cent of the total area and 47.6 per cent of the total production. The autumn crop contributed to 46.2 per cent of total area and 43.7 per cent of production. The rest was accounted for by the summer paddy. Yields are the highest for the summer crop.

In 1978-79, the rice acreage was 23 per cent of the total cropped area, 31.4 per cent of the total area under foodgrains and 38.4 per cent of the area under cereals. The area increase was from 28.8 million hectares (1947-51) to 40.19 million nectares in 1978-79 (an increase of 39.5 per cent) and during



AVERAGE AREA, PRODUCTION AND YIELD OF RICE IN INDIA the same period, the production rose from 21.8 million tonnes to 53.8 million tonnes (rice). The productivity (clean rice) registered an increase of 580 kg/ha from 759 to 1339 kg/ha. The production increase has been through increase both in area (39.5 per cent) and in productivity (76.4 per cent).

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Causes of Low Yield

Causes of a relatively low national average are mostly known. A primary reason is the relatively limited area under controlled and assured irrigation. The percentage of irrigated area to total rice area in 1976-77 was only 38.2. In the rainfed lowlands, as in Bihar, West Bengal and Orissa, there is lack of adequate and effective water management leading to reduced nitrogen use efficiency. The main kharif crop in these States is also subject to vagaries of monsoon. In the rainfed upland areas also with scanty rainfall and/or with uneven rainfall distribution, the fertilizer use efficiency, especially nitrogen, is reduced. Further, losses due to insect pests and diseases are not uncommon during kharif. Moreover, the occurrence of cyclones accompanied by heavy rains at harvest time results in yield losses. Depsite this multiplicity of factors, it is mainly the water management that both directly and indirectly influences productivity.

High Yielding Varieties Coverage

The importance of water management is also reflected in the spread of high yield varieties (HYVs) in India. Of the total area under rice, that under HYVs rose from 2.52 per cent in 1966-67 to 38.72 per cent in 1977-78; and the targetted percentage in 1978-79 was 43.54. The figures for 1977-78 and targetted area for 1978-79 for the individual States are furnished in Table 1. Increase in the coverage has been gradual, but relatively slow, the annual increase being around 5 per cent or less but mostly between 2 to 3 per cent. Increase is noted even during unfavourable years.

Table 1

Coverage of High Yielding Varieties of Rice in different States.

State	1977-78		1978-79 (target)	
	Coverage	Percentage	Coverage	Percentage
Andhra Pradesh	2,425	66.22	2,500	63.72
Assam	450	20.00	520	23.20
Bihar	1,300	23.26	1,700	30.43
Gujarat	200	41.36	220	47.92
Haryana	230	61.99	250	54.00
Himachal Pradesh	65	73.61	75	76.14
Jammu & Kashmir	200	77.22	250	93.53
Karnataka	500	45.63	600	52.35
Kerala	360	42.84	500	62.00
Madhya Pradesh	1,500	31.70	1,700	35.95
Maharashtra	918	61.22	1,000	66.74
Manipur	45	25.13	50	27.92
Meghalaya	14	13.13	17	15.98
Nagaland	5	7.18	6	8.23
Orissa	800	18.16	1,100	25.16
Punjab	740	89.50	750	71.23
Rajasthan	48	26.10	50	23.81
Tamil Nadu	2,200	79.07	2,250	82.93
Tripura	116	38.36	125	41.88
Uttar Pradesh	1,800	36.98	1,900	37.27
West Bengal	1,600	29.49	1,975	42.64
Total	15,596	38.72	17,500	43.54

Among the major rice growing States (1977-78 data), the per cent coverage was the highest in Tamil Nadu (79) followed by Andhra Pardesh (66). The corresponding figure for Punjab was 89. Orissa had the lowest coverage under HYVs (18 per cent) besides Assam (20 per cent), Bihar (23 per cent), West Bengal (29 per cent), Madhya Pardesh (31 per cent), Uttar Pradesh (36 per cent) etc. Areawise, Andhra Pradesh was first (2.4 million hectares) followed by Tamil Nadu (2.2 million hectares), Uttar Pradesh (1.8 million hectarges), West Bengal (1.6 million hectares) and Madhya Pradesh (1.5 million hectares).

Thus, despite the availability of new varieties and a package of viable technology for increased productivity, the nonrealisation of increased yield (in relation to yield potential) can be attributed to ineffective water management with all its consequences. In fact, the low coverage under HYVs in Orissa, Bihar and West Bengal is due to limitations in the fertilizer use efficiency, especially nitrogen due to poor drainage. The reduced production and productivity figures in 1979-80 (Table 2), a drought year, are also a pointer to our dependence on water availability and proper management (irrigation and drainge).

Production and Productivity Trend

The zone-wise data on area, production and productivity and the yield figure for different States (Table 2) also emphasize the importance of water management. During 1978-79, the States in East zone (Assam, Bihar, West Bengal, Orissa along with Manipur, Arunachal Pradesh, Mizoram, Nagaland and Tripura) with the largest area under rice (17.5 million hectares) recorded productivity level of 1.1 tonnes/ha of clean rice which figure is only slightly better than that of Central India (Madhya Pradesh and Uttar Pradesh; 9.8 million hectares, 0.95 tonnes/ha). Among the States in the other zones, Punjab (10.5 lakh hectares) has a productivity level of 2.9 tonnes/ha of clean rice followed by Haryana (2.6 t/ha, 4.58 lakh hectares), Tamil Nadu (2.0 t/ha; 27.5 lakh hectares), Andhra Pradesh (1.86 t/ha; 39.7 lakh hectares) etc. Bihar, Uttar Pradesh, Madhya Pradesh, West Bengal and Orissa with 55.7, 51.4, 48.2, 47.6 and 43.7 lakh hectares respectively had average yield of 0.98, 1.1, 0.7, 1.4 and 1.0 tonnes/ha respectively. The zone-wise productivity was relatively less affected in the States in East Zone, while it was largely affected in the Central Zone (Madhya Pradesh and Uttar Pradesh). In 1979-80 (a drought year), the area dropped by 1.5 million hectares, production by 11.59 million tonnes and the productivity by 0.24 tonnes/ha. In short, water management has a decisive role.

Table 2

Area, production and Productivity—State-wise (1979-80, 1978-79)

State	Area ('000 hectares)		Production ('000 tonnes)		Productivity (Clean rice) (kg/ha)		
	1979-80	1978-79	1979-80	1978-79	1979-80	1978-79	Difference
Andhra Pradesh	3408.2	3979.1	6203.3	7432.2	1820	1868	—48
Assam	2127.6	2241.3	1876.4	2172.3	882	969	—87
Bihar	5109.0	5578.6	3597.9	5489.5	704	984	—280
Gujarat	458.4	459.1	437.2	534.5	954	1164	—210
Haryana	509.0	458.6	942.0	1228.0	1851	2678	—827
Himachal Pradesh	97.6	98.5	85.5	122.8	876	1247	—371
Jammu & Kashmir	267.9	267.3	483.2	546.0	1804	2043	—239
Karnataka	1081.9	1098.2	2231.2	2174.6	2062	1980	82
Kerala	787.1	799.2	1282.6	1265.3	1630	1583	47
Madhya Pradesh	4663.1	4821.2	1777.7	3562.1	381	739	—358
Maharashtra	1485.3	1498.3	1828.5	2200.8	1231	1469	—238
Manipur	155.2	159.6	227.5	255.2	1466	1599	—133
Meghalaya	102.2	106.4	124.9	130.2	1222	1224	—2
Nagaland	72.9	72.9	76.5	76.5	1049	1049	0
Orissa	4116.6	4372.0	2917.7	4401.9	709	1007	—298
Punjab	1167.0	1052.0	3041.0	3091.0	2606	2938	—332
Rajasthan	185.4	210.8	100.1	234.4	540	1112	—572
Tamil Nadu	2851.0	2756.5	6229.0	5558.6	2185	2017	—168
Tripura	254.3	298.5	291.2	368.4	1145	1234	—89
Uttar Pradesh	4942.1	5147.0	2468.3	5964.3	499	1159	—660
West Bengal	4904.7	4765.4	5686.6	6676.9	1159	1401	—242
Andaman Nicobar	11.0	10.9	9.6	15.9	873	1459	—586
Dadra & Nagar Haveli	9.9	9.9	11.5	13.4	1162	1354	—192
Arunachal Pradesh	56.7	80.3	78.0	83.6	1376	1041	335
Delhi	3.5	3.5	3.5	3.5	1000	1000	0
Goa, Daman & Diu	53.9	53.6	95.2	93.3	1766	1741	19
Mizoram	63.2	54.6	19.3	19.3	305	353	—48
Pondicherry	29.0	28.9	59.8	58.9	2062	2038	24
All-India	38973.7	40482.2	42185.4	53773.4	1082	1328	—246

A recent review article (IRC Newsletter, 1980) indicated that world production would have to grow by almost 300 million tonnes of paddy between 1974-76 and to the end of this century. India with a vast rice acreage along with China, would play a major role in providing stability at the international level. The Fifteenth FAO Regional Conference (1980) felt that special attention would be needed to raise paddy pro duction by 35 million tonnes over the next decade thus envisaging a growth rate of around 3 per cent as against the average of 2.2 per cent achieved during 1961-76. Water management, it said, had to be an essential component to achieve the objective. The importance of irrigation was also indicated in a survey report by the F.A.O. According to this report, irrigation offers virtually the only possibility of increasing the rice production fast enough to keep up with demand in many developing countries especially populous countries of Far Fast.

World production of paddy during 1979 was 380 million tonnes; and of this 345 million tonnes were produced in Asian countries. With the total production of 223 million tonnes India and China together accouted for 58.7 per cent and 64.6 per cent of the world and Asian production respectively.

Viewed in this perspective, the national government's plan to increase irrigated area in the country by 14 million hectares is significant. This increase should pave the way for stabilization in productivity, better utilisation of added fertilisers and adoption of viable cropping pattern that would take best advantage of soil-water-plant relationship.

Further Strategy

In our attempts to achieve increased productivity, different approaches are essential. Yield stability at the maximum level is desirable in areas with water control as in Punjab, Haryana, Tamil Nadu, Andhra Pradesh, etc. Simultaneously, development of new varieties to suit the existing cropping pattern or any newly developed cropping system should receive prior attention. Over-all production increase per unit area through a multi-crop approach should be achieved in irrigated areas.

In contrast, yield optimisation at a relatively high level should get priority in Uttar Pradesh and Madhya Pradesh. Introduction of resistant and high yielding varieties in endemic regions and in areas where the disease(s) and/or insect pest(s) are often reported and large-scale testing of early lines possessing drought tolerance to replace the locals in rainfed uplands, should have relavance. Yield stability has to be achieved, as in these two States, fluctuations could be directly related to drought. Raising of a more remunerative crop than rice though feasible is difficult to introduce on a large scale. Whether with the existing water regime and increased use of fertilizers especially nitrogenous it would be economical and if so at what level, would need critical study, and till then varietal substitution on a mosaic pattern shall have relevance. In Uttar Pradesh, rainfed uplands and shallow and shallow deep water areas should have variety replacement. Early planting in flood affected areas is a possibility before flood tolerant varieties could be introduced. The use of slow release nitrogenous fertilizers (neem cake coated urea or other coated fertilizer forms) in the low-lying and water-logged areas could have a marginal effect.

In contrast, with a sizeable acreage with paddy, even a marginal yield increase in States in eastern zone would have significant impact on overall production. Criss-crossed by a network of rivers and in the absence of a good drainage system, the water-logged areas record one of the lowest yields. Providing adequate drainage in these lands would help achieve our long-term objectives. Creation of additional irrigation potential is no doubt a high cost investment; however, in the long term perspective, the benefits to be accrued would far outweigh the investment cost. Further, construction of reserviors (small and large) at suitable locations to stabilize crop yields and minimise the drought impact are to be taken up. With adequate drainage thus ensured and already endowed with surplus water, area improvement programmes, commad area projects, water shed management projects, could be reintroduced.

With the establishment of such a water management system, introduction of an effective integrated nutrient supply system should increase fertilizer use efficiency. The fertilizer use for rice production, it is said, would rise eight-fold from 2.3 million tonnes of nutrients in 1974-76 to 19.1 million tonnes in 2000 A. D. Rice is a major utiliser of fertilizer nutrient (almost 1/3rd of the fertilizer pool). It has been estimated that the potential for nitrogen use for stabilising the mean yields of rice at 2.4 tonnes/ha on a national level assuming that the percentage area irrigated will rise to 50 per cent and the coverage under high yielding varieties to around 42 per cent is likely to be around 65 kg. N/ha as against the current level of 25 kg. N/ha being utilised in rice cultivation. To bridge this gap, organo-inorganic combinations of fertilizers would be increasingy introduced besides biological nitrogen fixation. In this connection, modified urea materials (urea super granules and urea briquettes), granulated compost and incorporation of blue green algae and azolla have given encouraging results. In brief, low monetary input technology should be linked up with improved cultural methods to derive maximum benefits.

With improved management and consequent better uptake of nutrients in general and nitrogen in particular, problems of second order—increased susceptibility to disease (s) and/or insect pest (s) due to increased succulence and effect of changed micro-climatic conditions—crop up warranting timely plant protection. Rice accounts for 13 per cent of pesticide use in the cost of insecticides/fungicides, the area to be covered, the amount of chemicals that would be required, possible hazards to environment, human toxicity problems etc. call for a realistic approach based on integrated pest management principle.

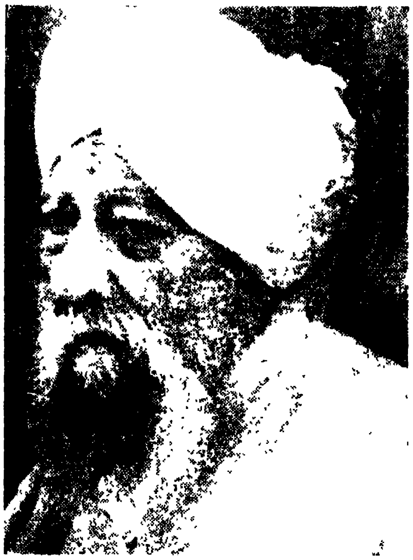
Another problem is nutrient deficiency, especially minor elements in soil. Sucessive rich harvests would deplete the soil of one or more minor elements, thus affecting soil productivity and balanced nutrient uptake by the crop. This has to be avoided by regularly monitoring soil fertility status in relation to cropping intensity and adopting corrective methods.

Faced witn a paucity of agricultural land and the spectre of growing population leading to urban and rural development both in horizontal and vertical direction, maximum production through multiple cropping has to be achieved. However, the success of the new cropping programmes would depend upon "turn around" time per hectare and timeliness of operations. Both require partial mechanization involving power tillers to a large extent and tractors wherever possible and harvesters and driers. Community approach with monetary support from the banking agencies and other financial institutions could accelerate the tempo of partial mechanization.

Linked up with the increase in production is the adequate storage capacity. To meet the new demands, rural godowns should be set up to help farmers store their paddy after drying and safeguard their interest by preventing distress sales. In a vast country like India with a preponderance of small and marginal farmers with an uneconomic and low land holdings and complete dependence on farm income, timely purchase of his produce by paying him a remunerative price not only creates a climate of confidence but also provides an incentive for greater production.

Pingla Ghar
A Home for the Homeless

B. S. Bawa*



Bawa Sarup Singh

"PINGLA" means the disabled, the mentally retarded, the physically crippled, the handicapped. The little-known "Pingla Ghar" of Jullundur in Punjab has the facilities of a hospital and affection of a home. It is a refuge for those handicapped people whom the Society, at times even the family, discards and abandons. It is a centre where they are provided shelter, food, clothes, protection and medical treatment without any distinction of caste, creed, sex or religion. It is a workshop where some of these people learn to be useful members of the society which abandons them. It is a unique place, made possible by the devotion of a single man, which has provided a haven for the mentally and physically handicapped for over 30 years, now.

Breakthrough

Pingla Ghar today is on the threshold of achieving a major breakthrough in the care of its inmates—particularly mentally retarded—with the addition of a full-fledged mental hospital wing attached to the complex—a most appropriate gift in the year of the disabled from its founder, Bawa Sarup Singh.

It was in 1951 that Bawa Sarup Singh thought of caring for the neglected and abandoned handicapped. He set up the "Home" in two thatched rooms and a verandah with five inmates. It was an uphill task for Bawa Sarup Singh to feed and supply food and medicines to them thrice a day. Today the inmates of the Pingla Ghar number over 350. Almost half of them are women and 60 children. Last month Pingla Ghar had its red-letter day. The 87-year old founder, Bawa Sarup Singh, achieved his long cherished desire to start a full-fledged psychiatric hospital wing beside the Pingla Ghar. This new unit designed to cater to the needs of 10,000 mentally disturbed persons will also go a long way in meeting the crying need of the region which has just one mental hospital at Amritsar catering to atleast three States—Punjab, Haryana and Himachal. This place will not be impersonal like a hospital. Nor will it be expensive like a private clinic But it will of course have the facilities of both. The annual budget of the Ghar is about eight lakh rupees. It is expected to rise with the opening of this hospital. Expenditure for running the home is met partly by its own income through the sale of products produced by the inmates and partly by donations by philanthropic individuals and business houses.

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*Editor , National Development News.

Shri Kidar Nath, paralytic but backbone of "Pingla Ghar" Cottage Industries Centre

Free Admission

There is no restriction on admission. Nobody has ever been refused admission. In fact, the staff remains on the look out for the destitute and ailing handicapped persons and they are brought in a rickshaw or a cart to the home. Nobody is charged anything for services or clothing or food. If some inmate's family can afford, they can donate according to their will.

Rehabilitation

The most commendable feature of the home is the institution's efforts to rehabilitate the inmates. There are the epileptic, the mental patients, mentally retarded and physically handicapped. Those who can do something, even making paper bags, are encouraged to learn it. Other trades include candle making, cycle repairing, clothes stitching etc. The basic idea is that they are able to stand on their own legs and become useful members of the society.

Last year alone, 33 of the 115 inmates who left after improvement in their conditions, were settled in the trades they had learnt. During the year the Pingla Ghar inmates manufactured and sold candles and other products which added to the centre's income by over Rs. one lakh. But much more can perhaps be done and achieved if specialised agencies come forward and set up more training centres by looking at the different types of handicaps.

The VVIP of the Pingla Ghar is the senior most inmate, Kidar Nath. He is 78, strong willed, young in spirit, with plenty of stamina for hard work and initiative. This paralytic person is the pioneer of the cottage industries unit of the centre which earns one lakh annually. He first learnt and now teaches the cured inmates these trades.

Why Madhya Pradesh is Backward

(*Continued from Page* 10)

The one major occupation of successive ministries (of whatever party) has been the problem of survival in office. The inevitable political instability has resulted in change of governments with sickening regularity. It gives them little time or inclination for sustained efforts towards the economic development of the state. In the event the ministers always tried to serve their respective constitutencies and regions as best as they could to ensure their return in the next elections. This is best achieved through the simple expedient of official patronage and political corruption is a framework of feudal hangover. What Madhya Pradesh desperately needs is an honest aggressive, united political leadership passionately dedicated to its development. This is a general observation and does not refer to particular politicians. Regrettably the stage for the evolution of such leadership has long passed. What the state has been facing is the age of quarreling Cabals. I also feel that the division of the present Madhya Pradesh into three smaller, workable states will promote its growth. ☐

Colour Television - An Educational View

P. N. Mathur*

COLOUR television has already reached our doorsteps. The inconclusive disscussions on this issue have highlighted the aspects of cost and technical feasibility but ignored its educational benefits over black and white television. What is that which can be achieved only through colour and not black and white television: Have we fully exploited the potentiality of black and white television ? Can we still make it a more meaningful instrument of charge? Or should we abandon it at the time it has started taking roots in our society ?

Black and White T.V

The SITE story is not yet old enough to be forgotten. It made a positive impact on rural masses and helped increase their knowledge about new agricultural technology, health and sanitation. Above all, television educated people in national integration. Education of the viewers was found to be a neutral factor in changing the rural viewers' outlook from conservatism to progressiveness. Similar experiences have been gathered in Columbian villages where exposure to television and other mass media were found to be important precursors to modernisation (Rogers, 1969). Several culturally compatible ideas were accepted through television which further enhanced innovativeness in the viewers. Villagers with less education and small farms, can be made modern through effective use of television. Black and white television has been found to have significant impact on knowledge acquisition and its retention among farmers. In Delhi villages, the rural viewers experienced 50 per cent gain in knowledge—of which 82 per cent information was retained even after a lapse of 15 days. Educational level of the people, of course, had an important role to play (Sinha, 1970). Even children acquired a better vocabulary, developed reading readiness and scientific interests through television.

Colour T.V.

These benefits were achieved through black and white television in India and abroad. To what extent colour television would add to these benefits is a question to be probed into. Evidences indicate that colour television will significantly improve educational telecasts involving objects which need colour differentiation. for example, various instructional programmes for farmers, students, childrens etc. Colour television has been found to intensify reality of visual materials and produce aesthetic, emotional and psychological effects. But it does not justify itself in terms of greater learning. Experiments on teaching effectiveness of colour and black and white television transmissions have proved that colour transmission improves retention of message, more so if the subjects call for critical use of colour, Study of disease symptoms in plants, physical characters of seeds, plants and animals, internal organs of animals and plants, various chemical changes and several such subjects will become much easier on colour television. To emphasize differences in maps and diagrams coloured and black and white versions were shown to separate groups of males and females. Viewers who saw the coloured version could decode the maps and diagrams better than those who viewed the black and white version. Interestingly, this difference in decoding was significantly higher in case of female viewers. About 25 per cent chemistry students in a U.S. University found colour television more useful in viewing demonstrations and some laboratory equipments. However, they did not find it useful in learning economics, psychology and accounting. Use of colour in instructional colour programmes may not always justify in terms of the subject learned, but, irrespective of it, viewers may like to see colour television.

We should take an analytical view of the whole mass-media situation in the country and improve our telecast by producing better programmes and linking television with other mass media and communication methods.

This leads us to believe that the Government's intention to accept colour television is mainly to improve the quality of educational component in our telecasts. But, to me it seems unlikely that our telecasts would give more of education to the viewers in the near future. Delhi Doordarshan devotes nearly 42 per cent of its total transmission period to entertainment and fantasy programmes and only 15 per cent to educational programmes (Jha, 1979). This imbalance in programme priorities will perhaps continue to exist because people want more entertainment than education. We will have to do away with the pretention of having colour television for improving educational programmes only.

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Unexplored Potentialities

Evidently, potentialities of the black and white television have not yet been fully exploited in India and we are preparing to abandon it. We should take an analytical view of the whole mass media situation in the country and improve our telecast by producing better programmes and linking television with other mass media and communication methods. In Delhi, viewers were found to be highly dissatisfied with the television programmes (Women Viewers were more dissatisfied than men viewers). Have a look at their programme preference—Chitrahar, Hindi feature film, Hindi drama, Phool khile hen Gulshan Gulshan, Charlie Chaplin and regional feature films.

It seems unlikely that our telecasts would give more of education to the viewers in the near future.

Interestingly, entertainment had lower rating than education in Delhi villages about ten years ago when approximately 12,500 farmers were getting farm information through television with 9.3 per cent of potential rural viewers viewing Krishi Darshan (Jagdish Singh, 1970). Now, the trend has reversed and the rural masses also prefer more of entertainment which is evident from the fact that on an average only 2.7 per cent people view community television sets in the evening when Krishi Darshan programme is on (Sinha, 1978). Incidentally, out of 80 television sets installed by the Government in Delhi villages, only 16 were in working order at the time of the above enquiry.

Several suggestions have been made for improving the quality of programmes on television. Improvement in acting, speech, photography and over all presentation have been suggested. For instructional programmes, accuracy and adequacy of information, based on the needs of the farmers must be kept in view.

Coming back to community or group viewing of television, it seems much remains to be done. If television in India has to succeed it has to reach every village and street in the country. Today, in villages only social elites among farmers are able to afford media facilities which are more of status symbols. In cities the sale of television sets has tremendously increased. But, the poor still cannot afford it. Group-viewing (only films at TV shops) is a common practice among the slum dwellers. Encouraging organised group viewing is one step the government should immediately think of. In Taiwan, television sets were placed in village headmen's houses for group viewing. It was observed that as many as 70 people came to watch programmes like "I love Lucy", "Lassie" and "77 Sunset strip" as well as drama and musical shows. Although very small portion of the programme dealt with agriculture, some of the viewers adopted many farm innovations through television (Cho, 1966). Similar successful experiences were gathered by the UNESCO in 1954 through "Teleclubs" among French farmers. In Italy, 10,000 "TV viewing groups" were formed in cafes and bars where 30 million people viewed television during the study period. But these "Telescuola" failed because of passive viewing of programmes devoid of basic education, experienced teachers, humour and good presentation.

Group viewing in India can be made more meaningful if specific programmes are structured for specific interest groups. Discussions after the group viewing can be encouraged, supplemented with suitable literature specially produced for this purpose. Special lessons and questions can be telecast and the viewers could send written answers to the experts for corrections. A "Media Mix" approach must be encouraged in India if we have to realize the full potential of the black and white television. □

Development of Scheduled Castes

"THE Special Component Plans are aimed at bringing about the transfer of an adequate quantum of resources to the Scheduled Caste families to enable them to cross the poverty line". This was stated by Giani Zail Singh, Union Home Minister while addressing the meeting of Scheduled Caste Members of Parliament called to discuss Special Component Plans of six Central Ministries.

Other important objectvies of the Special Component Plans included improvement in the educational levels of the Scheduled Castes through various general and special programmes and schemes, and in the provision of minimum and basic amenities in the Scheduled Castes basties under the minimum needs programmes. All States/UTs with a substantial population of Scheduled Castes had formulated their respective Special Component Plans, covering earmarked benefits from various relevant sectors of the State Plans. The Planning Commission has also requested the various concerned Central Ministries to prepare their Special Component Plans by reorienting the existing schemes and programmes to suit the special developmental requirements and handicaps of the Scheduled Castes and taking up new need-based programmes, Giani Zail Singh added. Sixty two Scheduled Caste Members of Parliament attended the meeting. Six Central Ministries whose Component Plans were discussed are : Rural Reconstruction Commerce. Health and Family Welfare, Works and Housing, Education and Agriculture. □

Planning in Tamil Nadu

N. Mahalingam, M. Santappa and B. Sivaraman*

Industry

INDUSTRIES in Tamil Nadu suffer from gross under-utilisation of capacities. The objective of planning should be to secure higher growth rate through fuller utilisation of existing capacities, creating new capacities in established industries and modernisation.

A probe into the position of the sugar industry in the State revealed that as against the installed capacity of 8 lakh tonnes, the current production is only above 4 lakh tonnes. In the case of the Cement Industry, the units have not been working up to their full capacity and this is attributed to shortage of coal shortage of wagons for the movement of coal, labour troubles, and problems of the kind. In the case of Automobile ancillaries, for want of raw materials and power, there has been under-utilisation of capacity. Besides these, there is also the problem relating to modernisation of plant and equipment. The Standard Motor Products of India Ltd., has closed down its passenger car manufacturing department and has completely switched over to the production of light commercial vehicles. While the motor cycle unit has not achieved fuller utilisation for want of demand, the cycle manufacturing unit could not work to full capacity on account of labour troubles. In the Textile Industry both the spinning and weaving units are working far below capacity. It is rather strange that M/s. Buckingham Carnatic Mills, the biggest weaving mill in the State, should have been closed. Apart from the need to modernise there is also need to rationalise the wage structure in these industries for achieving better results.

The real cause for under-utilisation of capacity has to be traced and proper remedies to be sought so that we can bring about a large increase in industrial production.

There has been a large scale speculation of land-values for housing purposes, severe shortage of house sites and overcrowding in the cities. With a view to remedy this situation a self-financing scheme for the socialisation of urban land based on the models obtainable in Stockholm and Rotterdam was outlined and presented to the Planning Commission. The scheme was discussed in detail and is pending recommendation to the Government.

With the prospective completion of the second mine cut at Neyveli and with the commissioning of the proposed Thermal Plants, the power situation is likely to improve considerably. However, it is felt that long-term approach to the problem will have to be made and the Member concerned proposes to convene a meeting of experts in power and related matters.

—N. Mahalinagm

Science and Technology and Technical Education

While Tamil Nadu has an impressive record of research in cereals, pulses, oilseeds, sugarcane, cotton, fruits and vegetables, a modest start has been made in areas like animal husbandry, fisheries, forestry and nutrition over a long period of time. In the perspective plan period, the need to develop a unified programme of research in agriculture and in all allied fields including nutrition has also been fully recognised, with the connecting links to be forged from the laboratory to the field. Research and development effort needs to be geared towards making coarse cloth, edible oil, sugar and low-cost housing which the poor majority badly need.

Out of the total State's Sixth Plan outlay of Rs. 3150 crores only 0.38 per cent is proposed to be spent on research and development for agriculture, forestry, fisheries, mines and minerals, public health and family welfare research, labour welfare, power etc. A bare minimum of Rs. 11 crores which forms just 0.35 per cent of the total plan outlay has been agreed to for technical education, the emphasis being laid on consolidation and stabilization of the existing technical institutions and the opening of the new engineering colleges or polytechnics to be cleared only by the All India Council of Technical Education.

On the one hand there is educated unemployment and on the other, non-availability of certain categories of skilled personnel. Curriculam reforms initiated so far to make education relevant to national needs have not made their impact yet and low level of the skill development among the population is one of the adverse features. If education is to be taken to the doorstep of the socially and economically weaker sections of the population, these groups should be indentified, flexible education programmes designed and agencies set up to reach the package of programme to them. The present vocational training courses should be supplemented to establish links between occupational mobility and career development. Unemployment is so high in Tamil Nadu and it is felt that the Commission should examine the question of absorption of the educated in various avenues.

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* Part-time Members, Tamil Nadu Planning Board.

In order to plug some of these gaps that exist in the industrial research panorama in the State, the need for establishing a State Council on Science and Technology as an integeral part of the State's Planning machinery has been emphasised.

At the instance of the Department of Science and Technology, Government of India, a meeting of the representatives of the State Governments as well as of existing State Councils was convened at Bangalore on the 14th and 15th January, 1981. The meeting discussed the optimum structure and the possible approaches to Science and Technology policy and the plan formulation in the State. The meeting made certain recommendations and objectives to be kept in view for the formation of science and Technology bodies, organisational framework, etc.

The Tamil Nadu Government has appointed a Committee with Dr. Malcolm S. Adiseshaiah as the Chairman to look into the possibility of establishing Tamil Nadu Science Foundation. This Committee has also examined the various R&D proposals from the State Councils of Science and Technology during the Fifth Plan period and has tried to up date these proposals where necessary and has also invited new R&D proposals from various organisations. It was decided at the Planning Commission meeting that Dr. Malcolm S. Adiseshaish, Dr. M. Santappa, Dr. Y. Nayudamma, Dr. G. R. Damodaran and the Vice-Chancellor of Tamil Nadu Agricultural University should meet and decide the larger issue of forming the State Council on Science and Technology in Tamil Nadu and also its relationship with Tamil Nadu Science Foundation on the one hand and the Government and the Planning Commission on the other. It is hoped that this [illegible]eting will soon take place and a decision will be arr[illegible]ved at.

—Prof. M. Santappa

Social Forestry Project with Assistance from SIDA

The objects of Social Forestry in general are to meet the fuel wood, small timber, green manure and fodder needs of the rural folk by taking-up plantations in the lake beds, village porambokes, un-assessed waste lands, community lands and to make them self-sufficient in small timber, fuelwood, green manure and fodder needs and in so doing create a significant, renewable source of fuel. The scheme will also create opportunities for large number of people who are mostly unemployed or under employed at present at places convenient to them to work.

The SIDA project as conceived now covers plantations of Eucalyptus hybrid and other selected species, raising pasture plots, raising irrigation fodder, extension service, adoption of forestry, and installation of Gobar gas plant in rural areas.

The SIDA has agreed to finance the Social plantations project in Tamil Nadu over a period of six years extending upto 1985-86 and invest during the Sixth Plan period (1980—85), Rs. 1400 lakhs with the balance of Rs. 3552 lakhs to be borne by the State Government.

—B. Sivaraman

Let there be More Light

Vasudev Bhat*

KUSUGAL, 12 kms from Hubli, is a tiny Railway Station in Hubli-Gadag section of the South Central Railways in Karnataka. Till December 1980 kerosene lamps were the means of lighting the station. Today Kusugal is the first and probably the only Railway Station in the country where the Methane gas (Gobar gas) from cowdung, provides lighting energy.

For this, one should appreciate the initiative and efforts put in by Shri Hari Prasad Babu, Divisional Railway Manager and full support to the venture given by Shri Jaffer Sharief, Minister of State for Railways.

This Gobar gas plant is the result of a co-ordinated, co-operative effort. Shri Peersab Moulasab the gangman, Shri Basappa Shivappa the cabinman and Shri Muktumsaf Peerasab the Pointsman of this station came forward and offered the cowdung of their milch cattle to be used as the source of energy. Shri Peersab Moulasab takes the trouble of collecting the cowdung and mixing it before it is fed to the Gobar gas well.

Railways gave the required land and finance for the Gobar gas plant. The Dharwad District Khadi Gramodyog Centre in Bengeri at Hubli provided the technical know-how. The Civil engineering section of the Railways took up the civil work of the plant. Khadi and Village Industries Centre also provided the fittings and fixtures of the gas lighting. Today five gas bulbs provide sufficient light to the Railway station. The Gobar gas plant mainly consists of two parts, (1) Digester and (2) Gas Holder. The gas collected in the gas holder drum flows out through the pipe. It is led to the lamps through the pipeline. The lamp consists of holder, mantle and a valve. The mantle is covered with a glass dome. The valve can be opened and the mantle lighted directly through a match stick or candle. The mantle gives light similar to petromax. ☐

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*Assistant information officer, PIB, Hubli.

Nanjunda Acharya along with some of his carvings

Patterns of Partnership

THE biggest of the Indian Banks has successfully put into execution various schemes and programmes aimed at extending a helping hand to the poorest of the poor.

The small farmers, the socially discriminated, the handicapped, unemployed women and other weaker sections of the society have all gained from the bank's imaginative schemes.

Some South Indian branches of the State Bank of India have the distinction of successfully putting into practice these patterns of partnership.

A beginning was made by the Kalgi Branch of the Bank when they organised a "Credit Camp" in collaboration with the Small Farmers' Development Agency. Loans were disbursed to 125 agricultural labours, mostly belonging to the Scheduled Castes and Tribes to purchase milch animals like she-buffaloes and sheep.

In Thovinakere, the women employed in beedi making now proudly run their own shops, thanks to the local branch of the State Bank. Employed as casual labourers, they had no job security. Their hours of work were indefinite and their wages were low. Once the State Bank stepped in, they got enough money in advance to buy beedi leaves, tobacco and twine. Now they make and market their own product, earning much more than they had ever got before. No more a beaten lot, these women have enthused the community on similar ventures.

The helping hand of the Bank extended succour to two ex-convicts of Nilakkottai village. Since they were ex-convicts, the villagers would not even talk to them. On the recommendation of the District Collector, the Bank explored ways of helping them and in the end each one was provided with a bullock cart and two bullocks. This enabled them to slowly move back into the social stream.

Milk and Money for Orphans

Master Vijaya of Ranebennur village was a mere child when his father was convicted and jailed for murder. Orphaned and ostracised, Vijaya went to live with an old aunt. Even a mouthful of food was a luxury to them. Taking pity on their sorry plight, the local branch of the State Bank advanced them money to buy a milch animal.

Meharunnissa, Noorjehan and Dilshad engaged in beedi making—now they can afford a good sari and their children can go to school

The State Bank cannot collaborate with a Michael Angelo. But it did help Silpi Nanjunda Acharya of Shivarapatna in Karnataka. Acharya had to take loans at exhorbitant rates of interest and the statues and idols he carved out of stone had to be sold off at throw-away prices to meet the deadlines of the moneylenders. The Kolar branch of the State Bank stepped in, and advanced him enough sum as working capital. Now he is prosperous silpi (sculptor), well known and established in the trade.

The Bank took note of the disabled also. In collaboration with the Kerala State Social Welfare Department, the Puzhathi (Cannanore) branch organised a Sports Meet and Painting Competition for the physically handicapped. About 150 handicapped children participated in these functions. Loans were given to 11 physically handicapped persons under the Bank's self employment scheme. The Tirupattur branch in Tamil Nadu gave similar loans to 20 handicapped persons. One of them, Shri Rajendran, a polio victim, started a cycle hire shop using the loan and is having a thriving business now.

More Credit to Underprivileged

It may be mentioned here that the recommendations of the Working Group of the Reserve Bank to work out the modalities of channelising more credit to weaker and under-privileged sections, have mostly been accepted by the Government. Accordingly, by March 1983, fifty per cent of the total lending to agriculture should be earmarked for small and marginal farmers, landless labourers etc. with borrowing limits up to Rs. 10,000. Similarly, by 1985, weaker sections engaged in small scale industry with a borrowing limit of up to Rs. 25,000 should account for 12.5 per cent of total advances to small scale industry.

By the end of March 1980, Rs. 101 crores have accordingly been distributed to weaker sections engaged in agriculture and Rs. 55 crores to rural artisans, small traders and other self-employed persons. ☐

Bank's Social Obligations

THE Deputy Minister of Finance, Shri Maganbhai Barot, has called upon the banks to go to the service of people and fulfil their social obligations. Shri Barot was inaugurating the first Delhi Branch of the Catholic Syrian Bank recently. Dwelling on the theme of growth with social justice, he said social justice demanded that benefits of growth must be as evenly-spread as possible among our entire population

Shri Barot dwelt at length on the services provided by the nationalised banks to the priority sectors and said that these banks had reached very near the target, their advances to priority sectors being 32.1 per cent of their total advances as at the end of June 1979. In 1980, it was decided that by 1985 this share should be further raised to 40 per cent of the total advances.

Sicafek New Anti-Cancer Agent

Himadri Choudhury and Jayasree Roy Choudhury*

CURABILITY of cancer has become quite controversial among the medical scientists. Here is a medicine, 'Sicafek' prepared at Chittaranjan National Cancer Research Centre, Calcutta. With the permission of the Drugs Controller, Government of India, 'Sicafek' trial was conducted on patients with cancer of the uterine cervix at the Hospital. The patients were at Stage III and IV with histopathological report revealing Epidermoid Carcinoma. Complete blood count, liver, renal function test, X-ray of chest, electrocardiogram, have been done before starting the therapy and at periodic intervals. Independent Assessment Committee was framed by Government of West Bengal to evaluate the cases undergoing 'Sicafek' therapy. The average age of the patients was 46 years and average parity was 5.

Table 1

Therapeutic effect of Sicafek

Category	Drug Effect on Diseases
1. Remarkable Regression	Clinical benefit with favourable subjective and objective changes in all measurable criteria 2/3rd regression of the primary growth of cervix along with resolution of parametrial infiltration.
2. Slight Regression	Favourable subjective changes with favourable objective changes in measureable criteria i. e. 1/3rd regression of the primary with improvement of parametrial infiltration.
3. Static (Controlled)	Subjective benefit with slight objective changes.
4. Excavated (No Response)	No clinically useful effect in the course of the disease. Disease progressed. No objective or subjective benefit.

Result

A total of 144 cases have been treated so far with Sicafek drug during the last 5 years. At the moment 12 cases are undergoing treatment as indoor patients. Hence evaluation is furnished on 132 cases excluding these 12 indoor patients. Out of these 132 cases only 22 have shown no response by way of excavation out of which 15 cases died during the course of the treatment. Initially there has been remarkable regression in 50 cases and slight regression in 28. There are 32 static and 22 excavated cases.

All the cases showing regression and about 50 per cent of the cases who revealed static condition without very much change of the tumour were accompanied by subjective response by way of relief of pain and veginal bleeding. The tumour growth arrest has been shown in 32 cases. In course of follow-up these cases have again showed subjective complication in 20 cases after 6—8 months and the rest 12 cases after 10—12 months. These cases were again given 'Sicafek' therapy or referred to Radiotherapy.

Slight regression, was noticed in 28 cases. In majority of such cases, regression continued for a period of minimum 12 months and maximum 24 months. Remarkable regression was noticed in 50 cases. It may be noted that due to the sense of well being after initial response, patients did not show interest for follow-up. It may be mentioned that the follow-up difficulties have been specially discussed in the Assessment Committee, who suggested to combine surgery after good regression *i.e.* performing radical surgery in patients who have been rendered operable after the therapeutic response to 'Sicafek'. Out of 132 cases only 89 cases could be followed-up which is shown in Table 2.

Table 2

FOLLOW-UP CHART

Years	Initial	Follow-Up
4 years and above	12	7 : 1—Advanced 6—Regression Contd.
3 years and above	15	3 : 3—Regression Contd.
2 years and above	25	18 : 8—Lost sight off 1—Death 1—Advanced 8—Regression Contd.
1 year and above	24	14 : 6—Lost sight off 1—Death 7— Regression Contd.
Below 1 year but above 6 months.	37	28 : 2—Death 26—Regression contd.
Below 6 months	19	19 : 2—Death 4—Static/Unchanged 13—Regression contd.

As per advice of the Independent Assessment Committee, the combination of surgery after the regression with 'Sicafek' a course was undertaken. Accordingly, two cases have been combined with surgery, and one of them that of Smt. K. D. 66 is reported herewith.

A case of Epidermoid carcinoma, stage III, with both parametrium infiltrated upto lateral pelvic wall, was treated with 'Sicafek'. After 40 days of treatment, the examination findings revealed early stage II with slight induration in the left parametrium only apart from lessened primary growth. The case was referred for possibility of Radical Operation. Head of the Department of Gynaecology, Chittaranjan Cancer Hospital, performed Mitra's Operation of Radical

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*Chittaranjan National Cancer Research Centre, Calcutta

Vaginal Hysterectomy with bilateral extraperitoneal lymphadenectomy. The specimen as shown, revealed only left parametrial infiltration adjacent to uterus and due to the left side of the bladder. The case is under follow-up.

The action of 'Sicafek' appears to be slow and about a period of two to three months is taken on the average to reveal regression in the responsive group of cases.

From the results obtained so far, it may be said that 'Sicafek' renders palliation in the advanced cases of cervical neoplasia. This is often accompanied by regression of such nature as inoperable case may be rendered operable. ☐

Cocoa Cultivation in India

A. R. Patel*

COCOA is a popular and very important beverage crop next to tea and coffee. India has produced 1000 tonnes of cocoa this year against the domestic demand of 2000 tonnes, besides a large export potential. By 1982-83, the production is expected to go upto 10,000 tonnes.

Although introduced in India more than two centuries ago commercial cultivation of cocoa is of recent origin. In Tamil Nadu, the scientific cultivation was first started at Kallar and Burliar Fruit Research stations in 1935. The real impetus was initiated in the Third Five Year Plan when a scheme was prepared by the State Agriculture Department in Kerala to bring at least 2,000 acres under cocoa plantation. But non-availability of sufficient quality seeds, resulted in bringing only about 750 acres under the crop until 1971.

Introduced by the initiative and expertise of Cadbury India Limited in the sixties the first commercial quantities of cocoa became available in 1974. Production has risen from 350 tonnes in 1978 to 600 tonnes in 1979 with the estimated output of 1000 tonnes in 1980. A large acreage came under cocoa in 1977-79 and when these trees start bearing fruit four years later, there would be appreciable production of cocoa beans from 1982 onwards.

At present the area under cocoa plantation amounts to over 18000 acres in the Southern States. Two areas in South India need special mention, Kanyakumari district in Tamil Nadu and Wynad in Kerala. In the Kanyakumari district the conditions are ideally suited for the growing of cocoa. Coconut is a major crop in the district particularly around Kulasakharam and it provides the suitable shade for cocoa. Of the two varieties of cocoa viz. criollo and forastero, the forastero variety which normally has yellow pods is preferred and cultivated in about 800 acres in the district as an intercrop with coconut.

The Government, well aware of cocoa's potentialities, has now initiated several developmental measures. The cocoa development programme at Malampuzha, the horticulture department in Karnataka and the Central Plantation Crops Research Institute at Kasargod in Kerala have strengthened research and development efforts. Trials conducted by the research institute have shown that cocoa can successfully be grown as an inter-crop both with arecanut and coconut and it has been also found that their yield as an intercrop is even better than their yield as a single crop. A Committee constituted by the ICAR in May 1975 recommended cultivation of forestero variety which constitutes the largest proportion of commercial cocoa in the world. It was also recommended that priority should be assigned to mixed planting with arecanut in existing arecanut plantations and to bring under cocoa an additional 7700 hectares (15400 hectares mixed) on an urgent basis.

The agro-climatic conditions of Kerala offer excellent opportunities for popularising cocoa cultivation. Cocoa can be cultivated as an inter-crop in the coconut garden. A good deal of extension work has been done in this State as a result of which the enlightened and the educated farmers have already commenced cultivation of cocoa The State has launched a five-year programme to bring 2500 hectares under cocoa as an inter-crop.

Being aware of the enthusiasm of Indian farmers in cultivating the cocoa, the Central Food and Technological Research Institute (CFTRI) at Mysore has developed technology for the production of refined cocoa mass in the form of blocks and granules. The product is useful as an important ingredient in confectionary, bakery products and ice-cream. Under the technology, properly fermented and dried cocoa beans are graded, roasted under controlled conditions, deshelled to remove the husk ground in a roll mill, tempered, moulded, cooled and packed in aluminium foil. They can also be packed in tins. The machinery required for the process can be fabricated in the country. The CFTRI has also proved that the percentage of acidity produced in the cocoa could be controlled by adopting proper methods of fermentation and drying.

Problem of marketing has been very serious. The small growers suffer from the disadvantages of unorganised marketing system. The problem may have to be approached through co-operative soceties. The management of the societies should be supported by required professional management and infrastructure. The market survey should be a continuing feature and new markets must be captured for which the consumers' needs should be studied.

We have the processing units with a total capacity of processing upto 20,000 tonnes a year. It is heartening to note that the State-owned Kerala Agro-Industries Corporation has proposed to set up a modern cocoa processing factory with a capacity of 5000 tonnes in the State, at an estimated cost of Rs. 10 crores. ☐

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*Bank of Baroda, Bombay.

Help to the Disabled in Kerala

THE Kerala government appointed Smt. L. Omankunjamma, IAS (Retired) as Commission to study the problems of the physically and mentally disabled in the State and to recommend remedial measures. The recommendations of the Commission are being implemented stage by stage.

Education and Services

There are at present 15 schools for the blind and the deaf in Kerala. Educational facilities upto VIIth standard are available in most of these schools. The children are given free boarding and tution subject to income ceiling. About 4500 disabled students received scholarships for various courses during 1980-81.

At present vocational training facilities exclusively for the disabled are available in nine institutions. They provide training mainly in book binding, cutting and tailoring, leather works, plastic works, weaving, painting, composing, proof reading, candle making plastic moulding, cora mat making, umbrella making chalk making etc. The trainees are given stipend.

Disabled students learning book binding at Vocational Training Centre for the Disabled, Trivandrum.

There is one I. T. C. and one J. T. S. for the deaf. Similarly there is one institution for providing training to the blind in light engineering operations. The trainees are eligible for scholarships. In addition five seats in each of the 12 J. T. Ss. have been reserved for the disabled.

Employment Facilities

A special Employment Exchange in Trivandrum looks after placement needs of the disabled in suitable vacancies. Kerala Federation of the Blind also has a placement service for the blind, with the aid of the Government. The Vocational Rehabilitation Centre, a Government of India Institution has facilities for the evaluation and placement of the disabled. The P & T department has evolved a special programme to install telephone booths at important centres manned by the disabled on commission basis.

The handicapped in a weaving class of Karthika Nair Memorial Rehabilitation Centre, Vallamkulam.

The Orthopaedically disabled are eligible for relaxation of ten years and the blind and deaf 15 years in upper age limit prescribed for recruitment to public services. The orthopaedically handicapped are eligible upto 10 per cent and the blind and deaf upto 12 per cent grace marks in interviews held by Public Service Commission.

The disabled candidates are paid T. A. to appear for interviews. In deserving cases escorts of the disabled are also eligible to get financial assistance under the scheme.

Government have reserved 3 per cent of the vacancies under class III and IV groups for the disabled, 1 per cent each for the blind, the deaf, and the orthopaedically handicapped in government departments and corporations.

For the promotion of self-employment, the physically disabled individuals get Rs. 500 each for starting small trade or business of their own. During 1980-81 600 persons received aid under the scheme. Disabled persons who do not have any means of support, are given Rs. 55 p.m. as pension.

Blind persons are allowed free travel by Kerala Government buses and departmental boats. Orthopaedically disabled persons are eligible to travel at concessional rates.

Government have introduced a scheme to pay Rs. 50 per month as conveyance allowance to the blind and orthpaedically disabled government employees. Part-time and contingent employees are eligible for Rs. 25 a month.

Deaf students in the workshop of Snehabhavan ITC

Homes for the Disabled

There are eight Departmental Homes for the care and protection of the disabled. The inmates of these departmental institutions are given a monthly maintenance grant of Rs. 85. Under the Scheme for giving grant-in-aid to orphanages, there are well over 40 Homes for the aged and infirm receiving monthly maintenance grant of Rs. 45 per inmate.

Over 14 institutions look after the mentally retarded. They give them training and education. The mentally retarded children studying in private institutions get scholarships. Under this scheme an amount of Rs. 30,000 was spent during 1980-81.

Self-employed Shri S. Naushad, an ex-trainee of the K.F.B. Rehabilitation Centre, in his candle making unit.

Assistance to Voluntary Organisations

Under the Central Scheme of assistance to the voluntary organisations for the disabled in Kerala, 17 projects from 12 organisations with a total expenditure of about Rs. 30 lakhs were recommended during 1980-81.

Medical Facilities

There is a full fledged department of physical medicine and rehabilitation under the Medical College, Trivandrum. With the collaboration of the Artificial Limbs Manufacturing Corporation of India, a Regional Limb Fitting Centre has been established under the Medical College, Trivandrum with facilities for the fabrication of various types of prosthetic aids and appliances. A peripheral limb fitting centre is also functioning under the Medical College, Calicut. Disabled persons get special aid at concessional rates from these centres in addition to therapeutic services.

Welfare Corporation

Government have set up a Corporation for developing employment oriented programmes for the disabled. The Corporation has at present a departmental store and a mobile sales unit. In addition it is developing an artificial limb centre. One thousand sales units are to be started during the I. Y. D.P. itself, at a cost of Rs. 85 lakhs. One thousand sales cabins will be constructed in all the Districts at a cost of Rs. 50 lakhs. One thousand handicapped persons will get one cabin each. The State Bank of India has come forward to give financial assistance.

Giant Chilli Plant

N Sriramachandramurthy*

CHILLI is cultivated throughout India in 6.5 lakh hectares with an average annual production of 4 lakh tonnes. The annual per capita consumption is 850 gms. Within the country 97 per cent is consumed and only 3 per cent of total production is exported.

In the kitchen garden of Shri N. Setagopan at Srisailam in Andhra Pradesh, chilli seeds gathered from the pods purchased locally for domestic consumption were sown in October 1978 for green chilli purposes. Among the population, one plant was found to be abnormally vigorous and it was shown special care in watering, manuring and providing support. No chemical fertilizer was applied. Well rotten farm yard manure and sheep manure were applied and hoeing was done frequently. Watering was done regularly twice a day and thrice in summer months. Bamboo support was given as the plant attained considerable height.

The giant chilli plant has 45 cms thick stem and attained a height of 420 cms in 2.5 years.

Shri N. Setagopan with his chilli plant.

In a period of 2.5 years the plant has grown to 420 cms height. Stem is 45 cms thick. Leaf is 90 mm long. Ten dry fruits, each 3.6 cms long and 2.4 cms girth, weith 5 gms. The yield per plant is 0.5 kg dry chillies in the first year and 2 kgs in second year. During the first six months of the third year the plant gave 2 kgs of chillies.

The plant has been examined by the Chilli Breeder of Andhra Pradesh Agricultural University and it was found to be a variety of *Capsioum annum.* The flower buds and seed pods were brought to Lam for further tests. On examination the chromosomes were found to be $2n=24$ and they were normal in number, size and shape.

Chilli can withstand climatic variations. It can grow at sea-level as well as upto the height of 2000 meters. There is wide variation in plant

*Chillies Breeder, Regional Agricultural Research Station, Lam, Guntur.

height (15 cm to 250 cm) fruit length (1 cm to 25 cm) fruit thickness (1 cm to 30 cm) fruit colour (white to dark green and purple light red to deep red and yellow) and in pungency (ranging from sweet types to very hot types). Generally the perennial chillies are *Capsium frutescens* types characterised by small and very hot fruits borne in 2-3 at each axil with arect disposition. They can be grown for 5-6 years and attain 6-7 feet height. But the plant identified in the kitchen garden of Sri N. Setagopan is an *annuum* type and has attained a record height of 420 cm within a period of 2.5 years. It is still growing which is a rare event and there is no world record so far The efforts of Sri N. Setagopan in careful maintenance of this abnormal plant are praiseworthy. ☐

Water for Himachal Villages

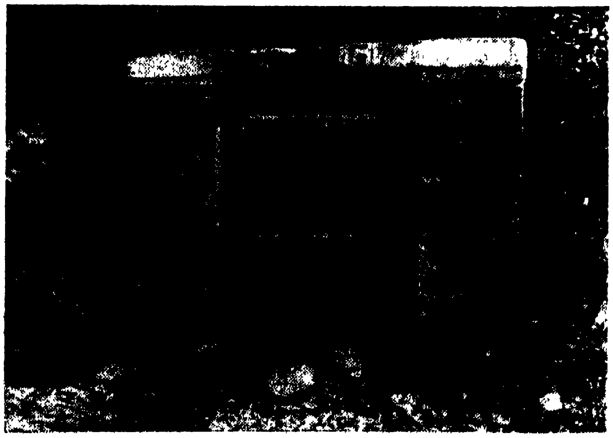
Storage and pumping works of an Accelerated Rural Water Supply Scheme.

IN Himachal Pradesh 3.5 lakh people in 1600 hilly villages will be provided with drinking water this year. The annual outlay for the purpose is Rs. 15 crores, the highest so far. Last year it was Rs. 12 crores.

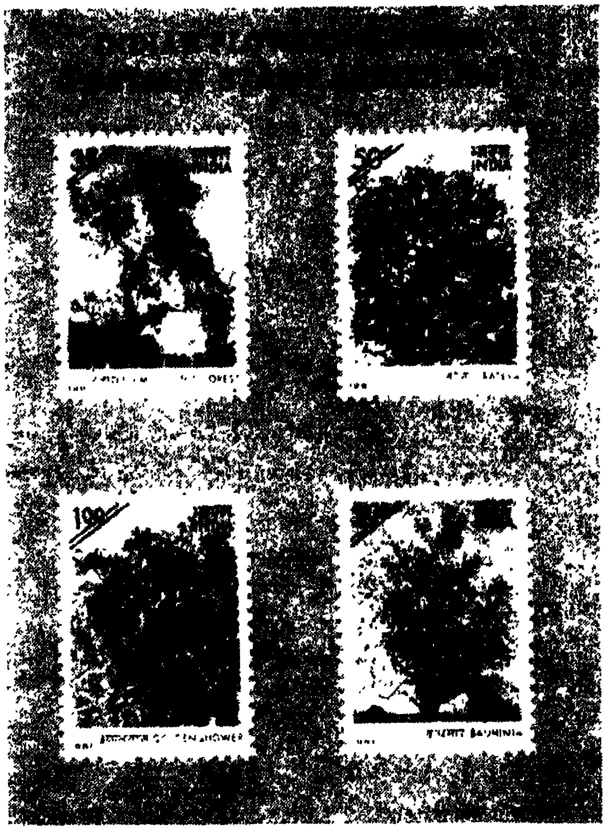
The State has only 32 lakhs of rural population, but scattered widely in small clusters on hills and in valleys in 17,000 villages. As a result, in several cases pipelines carrying water run to over 100 kilometres. This makes the implementation of village water supply schemes very complicated and costly.

Until March this year, more than half of the population has been provided with safe water facilities. Of this, about 10 lakh people live in villages which are far away from water sources.

A comprehensive plan of Rs. 90 crores has been framed to bring water to 9000 villages by 1985. State's share is Rs. 50 crores and the rest is expected to come from Central government and foreign assistance. ☐



A Khatri underground water store which is used no more.



Four Stamps on Flowering Trees

THE Posts and Telegraphs Department has issued a set of four stamps on "Flowering Trees". Printed in multicolour the stamps depict the following trees: Flame-of-the-forest (35 paise); Crateva (50 paise); Golden Shower (Re. 1); Bauhinia (Rs. 2).

The photographs depicted on the stamps are by late K. M. Vaid (Flame-of-the-Forest and Bauhinia) and by Shri Rajesh Bedi (Crateva and Golden Shower). ☐

TRENDS

Production and Exports

"IN formulating the import policy for the current year, due care is taken to see that we are able to reduce dependence on imports and provide essential inputs to the industry so that industrial production picks up both for domestic use and for exports". Shri Pranab Mukherjee, Union Minister of Commerce, Steel and Mines said this while inaugurating a meeting of Export-Import Advisory Committee (Northern Zone).

In respect of 207 items, the policy was made more restrictive taking into account the indigenous production. In respect of another 202 items, however, the policy was made comparatively liberal to fill the gap, between domestic production and demand. A number of steps were also taken to help the export drive. The interests of the small scale units were particularly kept in view. A major simplification was introduced to enable the small scale units to obtain repeat licences for raw materials and components upto Rs. 1.00 lakh in value without having to show past consumption. This facility would help as many as 4,000 units in the small scale sector. On the export side, the scheme of duty-free imports against REP licences was enlarged to include import of raw wool against exports of hand-knitted woollen carpets. The 'Actual User' condition has also been done away with under this scheme so that small scale units are able to make use of it to a greater extent, he added. □

Four Mini Cement Plants for N.E. Region

THE North-Eastern Council has made provision of Rs. 9 crore for the establishment of four Mini-Cement Plants during the Sixth Plan period. This was disclosed recently at Itanagar by Shri K. M. Mirani, Secretary, North-Eastern Council in his report at the 18th meeting of the North Eastern Council. Of the four Mini-Cement Plants, the 30 tpd (Tonnes per day) Plant at Tezu is already under construction while detailed project report has been finalised for the 200 tpd Plant at Umrangsu in Assam. The feasibility report of the 60 tpd Plant at Hundung in Manipur is under consideration while the 50 tpd Plant at Wazeho in Nagaland is awaiting clearance from Planning Commission. □

National Eco Development Board

THE Government of India has decided to set up a National Eco-Development Board. Chaired by the Secretary, Department of Environment, the Board will have as its members representatives of the Ministries concerned, Planning Commission, Director General of Indian Council of Agricultural Research, Inspector General of Forests and six eminent scientists.

The Board will identify critical ecosystems and prepare detailed operational blue-prints of projects for ecological preservation and restoration especially in hilly regions, while ensuring that the basic requirements of the inhabitants of such areas of water, food, fodder, fuel, fertilizer, fibre and timber are met. □

Resources-Based Projects for North Eastern Region

THE first Regional Conference of Industry Ministers of North Eastern Region has decided that future project identification could be done in areas such as agro-forestry, horticulture, fruit-processing, sericulture, timber and wood products where the region has a considerable comparative advantage in addition to existing large scale projects. The Conference has also suggested the use of the local resources in such projects as the local population are conversant with some of these products though at a lower level of technology. Projects identified would then help induct the latest upgraded technology for using local resources.

The Conference also said that while doing resource-based industrialisation of the region it is equally important that a project itself assumes responsibility for conservation, utilisation and regeneration of the exploited resources, namely re-afforestation programmes for paper mills using forest material.

Research and Development in ITI

THE Research and Development activities in the Indian Telephone Industries (ITI) at Bangalore cover the entire spectrum of communication equipment, from electro-mechanical and electronic switching to long distance transmission system cover cable, microwave and through Satellite. Nearly 60 per cent of the equipment being manufactured in ITI is of indegenous design. Even in the case of remaining 40 per cent substantial adaptatoins have been made in ITI to improve reliability of operation.

ITI would be supplying the entire equipment for the ground station links for the Indian Satellite which is expected to go into the orbit in February 1982. For the INSAT project ITI is supplying equipment for 22 earth stations which includes six mobile earth stations which are vehicle mounted and can be transported to any location in the country.

ITI is completing development of a local-*cum*-transit switching exchange suitable for extending communications to the rural areas. The design employs completely digital electronic switching using the most modern technology of Time division switching. The equipment is expected to be ready for field evaluation before 1981-82, and would be manufactured in the new Palghat factory. Utilising similar advanced concepts, ITI has also designed a PABX with a capacity of upto 1000 lines suitable for large offices, hotels, etc.

ITI has also completed design of 50 line electronic teleprinter exchange which is under field and evaluation in the P & T.

ITI in co-operation with TRC and the Defence Department has completed development of a family of systems in the microwave region from 2 GHz, 4, 6, 7 to 8 GHz. Each micro wave channel in the 4 and 6 GHz range provides for 1,800 speech circuits or 960 speech circuits plus one television channel. It would be possible to provide a national television hook up once the stations are connected through such microwave circuits. □

BOOKS

Quest for Appropriate Technology

Technological Choice in the Indian Environment, edited by Vinod Vyasulu, Sterling Publishers Private Ltd. : page 351, Price Rs. 120.

THE volume under review is based on the proceedings of the National Seminar on "The Technological Choice in the Indian Environment" held in Bangalore in October, 1977. It brings together the views of eminent social scientists and managers on the vital subject of technological change. The participants of the Seminar reviewed the on-going work at the IIM, Bangalore. They expressed the views on specific theoretical issues and exchanged personal experiences in such diverse fields as health, nuclear energy, housing and construction, Coal Mining Industry, Gandhian Technology, foreign collaboration disguised unemployment etc.

After serious discussion, a uniform set of definitions were adopted and the use was recommended in the interest of clarity in further such debates. Some of the terms that were defined include technique, management, technology, under-development etc. The conclusions and recommendations adopted at the Seminar are given in Appendix I. It is hoped that these will constitute the starting point for further research in the field of selection of appropriate technology.

The concluding remarks of Prof. M. N. Srinivas, given at the end of the book, are thought provoking and deserve careful consideration by social scientists, policy makers and economists. His suggestion for altering the rural-power structure deserves special attention if the benefit of development is to be carried to the weaker sections of the populations.

It is hoped that the present collection of essays/papers by eminent social thinkers would be of considerable interest to all those actively involved in the task of removing unemployment and poverty by harnessing the latest development in the field of management, science and technology.

K. Prasad

Financial Management

Financial Control in a Welfare State by B.B. Lal, Publications Division, Ministry of Information & Broadcasting, Govt. of India; Second Edition, pp 324, price Rs. 45.

FINANCIAL MANAGEMENT in a welfare state has many aspects which affect the administrative machinery and various economic activities of the government. Much of the success in welfare planning depended upon the efficiency of financial control. The system of financial control and management existing in centrally directed economies like Communist China or Soviet Union has been radically different from that in parliamentary system of the United Kingdom or the United States India has evolved a system on the foundation of rules and procedure adopted under the British rule. After independence the goals of administrative and economic activities changed significantly as a result of which changes in financial management procedures had also to be incorporated. In order to make these changes effective, the Government of India considered it necessary to formulate its policies with caution for which reason it constituted several committees and obtained opinion from a large number of experts. The publication under review gives compilation of the chronological summary of various suggestions, opinions and observations.

The study has been divided into 14 chapters, some of the important chapters being Parliamentary Financial Control on Expenditure after Independence, Attached Finance Scheme, Internal Finance Scheme, Enhanced Delegation of Financial Powers, and Financial Management in Public Sector Undertakings. There is a chapter dealing with Public Sector and Planning. but it is very sketchy in description and weak in analysis. Some important items of information on techniques of financial control, centralisation, advantages of decentralisation, performance budgeting and performance appraisal given as appendices may be useful to students of the public financial control.

The book under review is the second edition of the study published in 1965. In his foreword to the first edition, A. K. Chanda considered the study excellent. He also stated that the author had given the historical background of the evaluation of financial relation between the financial and other organisations of the Government and had analysed with lucidity the readjustment in these relations to secure economic efficiency and propriety in public expenditure While bringing out the second edition, the author took the opportunity to incorporate some more information relating to financial management in public sector undertakings.

The publication has a historical importance. To serious and analytical students, the study may seem wanting in many aspects.

Bepin Behari

Adult Literacy

Adult Education for Social Change by T.V. Rao Anil Bhatt and T.P. Rama Rao in collaboration with Deepte Dixit and D.S. Sarupria. Published by Manohar Publications, Pages 192, Price Rs. 60.

THE volume under review seeks to appraise the National Adult Education Programme in Rajasthan on the basis of extensive field work. The programme was undertaken by seven voluntary agencies running 1785 Adult Education Centres with a view to eradicating illiteracy and making literacy an instrument for self-development and for social change.

Various facets of this developmental and people-oriented programme were studied, the purpose being not only to generate data but also to find out what is happening at present and what more is possible. In the light of the findings necessary changes could be made to make the programme more useful and attractive.

An analysis of the data based on the systematic investigation by the authors with the help of 17 competent investigators shows that National Adult Education as implemented by these seven agencies has been a success. There is, however, considerable scope for doing things better. In this context, the role to be played by State Resource Centre, the State Government and the Monitoring and Information System have been discussed and suggestions made for improvement at various levels.

Educational workers in general and adult educators in particular will find this evaluation encouraging. The book should prove useful to all those who are concerned with the promotion of adult literacy. The authors have done a commendable job. The survey they have provided has a value all its own in the national context.

This is the first appraisal. It is proposed to study the remaining fifty-eight voluntary agencies in the second appraisal.

R. M. Bhatt

Federal Finance

Evolution of Fiscal Federalism in India; by R. K. Sinha; Published by South Asian Publishers Private Ltd., New Delhi; pages 253.

THE book under review seeks to make a detailed study of fiscal federalism in India since 1833. The book is divided into 13 chapters of which first 10 present the historical trend of federal finance in India and the last three bring out the constitutional basis of the federalism, fiscal federalism in actual practice and the strains which have developed in its smooth functioning.

The author has made an excellent attempt to present the history of federal finance in India in a simple, understandable and consistent manner. The book should be of considerable value to the students as well as scholars interested in the subject. The last two chapters are of importance particularly to the policy makers. In Chapter 12, Dr. Sinha examines the respective functions and roles of the Finance Commission and the Planning Commission over the last 30 years. While recommendations of the first Finance Commission have been highlighted, the work of the successive Finance Commissions has been underrated and has not been fully appreciated by the author, in particular the Sixth and the Seventh Finance Commissions made significant departures in regard to devolution of resources to the financially weaker States.

One may not agree with some of the observations and conclusions of the author and may not be fully satisfied with the treatment given to certain aspects of the fiscal federalism in India but on the whole, this book is a welcome adition to the literature on the subject. The author deserves a word of praise for the pains taken by him in presenting an interesting thought provoking study.

D. R. Gupta

A Valuable Book on Management

Readings in Management: Ed. N. C. Joshi and V. C. Kesary; Publisher—A. H. Wheeler & Company, 15, L. B. Shastri Marg, Allahabad-1; pp. XXVI 775, Price : Rs. 130.

THE learned editors deserve to be congratulated for having compiled this book on Business Management. India now ranks among the first ten industrially developed states in the world. Thus there is a growing demand for sophistication in management which in turn calls for a technical and professional approach in the areas of man and machine management. The editors have collected contributions from a galaxy of leading thinkers and practitioners in the field of management, which include such well-known personalities as P. J. Fernandes, M. S. Swaminathan, Kamal Chowdhary, A. P. Paul, Ishwar Dayal, B. L. Maheshwari, V. S. Murthy, V. Jaganadhan, R. K. Vepa, B. K. Madan, and host of others.

The collection covers a vast and varied gamut of subjects which have been arranged in a logical sequence beginning with Management and Emerging Trends, Organisation Development, Corporate Planning and decision—making, Project, Production and materials management, Aspects of financial management, Manpower management, Personnel management and policy, Marketing Management, Management of research and development, and Issues in management of Indian economy.

As has been rightly stated by P. J. Fernandes "never in the history of the world has the intelligence and capability of the human individual been so important as it is today. It is quite possible for one machine to do the work of 50 ordinary men. But it is questionable whether 50 machines can do the work of one extraordinary man and that is the kind of man who is needed in the management ranks of public affairs. Ultimately it is for such men with appropriate attitudes and talents to lead the country in this age of automation and computers. It is for the growth and development of such men that this volume is directed. Indian industry, business and public administration need men who have clear goal perception, unambiguous role perception and courage to do. In this view of the matter, the concept of management by objectives and workers' participation stand out as the path way to progress. Of course, this poses an immense challenge to the capacity of present and future captains of industry who have to seek cooperation all around and yoke the men under their command in the manner of a dedicated team.

Development of mangerial skills is the challenging task by any standard. Basically it rests on the internal glow which sparks in an individual but it must at the same time be supported by proper environment and opportunities for growth to achieve fruition. "Readings in Management" fulfils such a need and forms a useful addition to the growing corpus of Business Management and Public Administration. A valuable reading for alert and determined minds.

G. B. K. Hooja

CORRECTION

The caption of the picture on page 29 of September 1—15, 1981 issue of the Yojana reads as "BHEL, Hyderabad, an inside view" and not as printed.

Salem Steel Plant-a view

Salem Steel

L. Santhanam*

THE Salem Steel plant has taken shape in sprawling 1545 hectares along the Salem-Taramangalam high way in Tamil Nadu. The Project, with a capacity of 32,000 tonnes of eversilver sheets, has been commissioned recently.

Sophisticated Technology

Peugeot Loire, a French concern, has provided the latest technical know-how. Salem Steel Plant utilises the latest equipment including a high speed computerised Sendzmir Cold Rolling Mill, a-2 high reversing skinpass mill, two continuous annealing and pickling lines with neutral electrolytic bath, a high-speed strip grinding line and other finishing facilities like shearing line with vacuum piler, slitting line with quick slitter-head change device and sheet polisher for hair-line and mirror finishes.

Completed Infrastructural Facilities

Planning and Engineering Departments, warehouses, telecommunication facilities, power-house, employees' housing and water storage tanks have been built. A centre in the plant provide training to the employees.

Staff Quarters at the Township of Salem Steel Plant

Water Supply Head-works at Poolampatti on the river Cauvery

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*Our Sub Editor, Yojana, (Tamil) Madras

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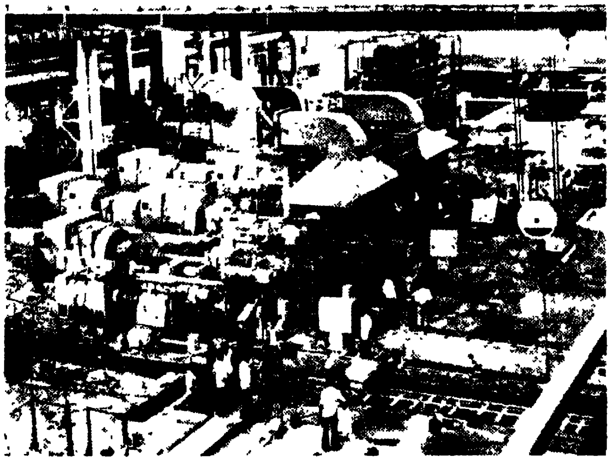
Sendzmir Mill of Salem Steel Plant



Annealing and pickling lines of Salem Steel Plant

There is a laboratory too, for testing the quality of the materials used in civil construction works. A first-aid post and a full-fledged fire service station are also situated inside the plant. From Salem Steel Plant to Salem Junction a nine kilometer long broad gauge railway track is laid.

In the proposed township 768 plots will be constructed in four stages. Community Centre, and 18-bed hospital, guest-house, play ground, market etc. will be provided.

A water reservoir with a storage capacity of 2 crore gallons has been constructed to meet the requirements of the plant for 10 days continuously. The TN Government has constructed the 28 km. long pipeline and headworks at Poolampatti. The reservoir is fed by the river Kaveri near Poolampatti through the pipeline.

Perhaps for the first time in the country the plant is entirely designed by Indian technicians. Computers are playing a vital role in this plant. The TDC 312 model computer, supplied to this plant by Bharat Electronics Ltd., Hyderabad, has already been commissioned.

The Annealing Pickling Line section of the plant needs LPG fuel which is procured from Bombay High. To store 1500 tonnes of LPG, which is a month's requirement, three storage tanks have been built.

Sendzmir Mill of 700 tonnes is the kingpin of Salem Steel Plant. The Japanese concern Hittachi have provided the technical know-how and their technical experts have supervised the erection of this mill. A computer looks after the works of the 'Z' Mill. All electrical construction works in this regard have also been completed. Almost all operations are done mechanically. It is said that in a minute a 600 m long and 6 mm thick eversilver sheet is cut into small 0.4 mm pieces.

This Steel Plant has ushered in a new era of industrial renaisance in Salem district. ☐

Computer centre of Salem Steel Plant

500 *Tonnes Horton spheres for storing LPG fuel at Salem Steel Plant*

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PRICE RUPEE ONE

BETTER FARMING IN SEMI-ARID AREAS

Medical check up of tribals of Chhota Udaipur

Better Days Ahead

for

Gujarat Tribals

Milk collection centre of Milk Producers' Society, Bhisia in Dangs District in Gujarat. There are 19 Milk Cooperative Societies in Dangs District

Photos by : Michael Shylla
For article, see page 34

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The Other Antyodaya

Yet another conference convened by the UN in Paris last month in order to help the world's have-nots has ended without much success. Representatives of the rich, middle tier and the poorest countries participated in this conference on the Least Developed Countries (LDC's). There are 31 countries in this category—21 in Africa, eight in Asia and one each in the Pacific and the Caribbean. They have a population of 250 million and many of them are endowed with rich natural resources. These countries suffer from negative growth rate, declining per capita income, falling agricultural production, steeply increasing trade deficits and grinding debt burden. Unless their economy grows at least at the rate of 5 per cent, unemployment and starvation will become rampant in many of them. A report by the World Bank blames the increasing oil prices and the mismanagement of their economy by the LDC's as 'intolerable'. He said : "The stark reality poverty. But another report prepared by the UNCTAD clearly shows that the discriminatory and unhelpful attitude of the rich nations is the root cause.

While addressing the Paris Conference, the UN Secretary General described the condition of the LDC's as 'intolerable'. He said : "The stark reality confronting mankind today is that close to 850 million people in the developing countries are living at the margin of existence, enduring sickness, hunger, homelessness and unemployment." The Socialist President of France echoed these sentiments. But the representatives of US and Britain were harping on the need for the LDCs to change their economic policies. President Moi of Kenya pointed out that the LDCs would in the 1980s need only 133 billion dollars in aid, while more than 500 billion dollars were being spent on armaments each year.

The 'Group of 77' wanted the conference to approve a resolution for doubling the 6.7 billion dollar annual aid to the DLC's, France, the Scandanavian countries and the Netherlands were in favour of this, but countries like US and Japan opposed. In the end the conference approved a a compromise decision to the effect that the aid to the LDCs should be 'substantially' increased between now and 1985.

The minimum development aid target of 0.7 per cent of GNP, which was long ago fixed by the UN, has not yet been fulfilled by many of the developed countries. In fact, the US and Britain have reduced their aid commitment. The leading Western powers want the poorer countries to allow the expansion of activities of multi-nationals in their economy instead of seeking governmental aid. The Eastern Bloc has also been indifferent towards the plight of the LDCs. Already some of the LDCs have become cockpits of big power rivalry, and world peace will be endangered if their poverty is not quickly alleviated. So far as India is concerned, she has been rendering maximum assistance to these countries even though she is just a developing nation.

While it is the duty of the other nations to help the LDCs, They, on their own part, should take some urgent measures of self-help—namely, enactment of agrarian reforms, adoption of modern

(continued on page 35)

Alcoholic Drinks and Prohibition

R. R. Diwakar*

TODAY a human person (man-woman) has reached a stage in evolution when one is not merely highly conscious but is also self-conscious and knows what is going on in his or her own consciousness. We have also developed a faculty called conscience, (an inbuilt controlling agency) functioning as an instrument for value-making, discriminating between good and evil as well as right and wrong, and deciding upon the path to follow in action. Thus equipped, we are capable of controlling ourselves and our own actions and destiny to a certain extent at least, and to the limit set by nature or cosmos. Any thing, any hurdle which obstructs this process of self-control, self-culture and self-mastery has to be shunned like poison, so that progress in evolution may continue unhindered by avoidable obstacles. This is the area of conscious evolution.

A human person is a coordinated organised bundle of energies, physical, vital, mental, moral, aesthetic and spiritual, over which that 'person' is presiding. Any injury resulting in subnormal functioning, malfunctioning or disfunctioning of any of these energies, has to be guarded against by every rational person bent on progress.

It is but natural that we try to avoid all kinds of pain and seek every avenue of pleasure of many hues. Both pain and pleasure are sensations(Vedana in Sanskrit); pain is always undesirable and pleasure is highly desirable All along we as human beings have been trying to overcome all painful sensations and to clutch and hold fast to pleasurable ones. It is in this process that we in our long history have tried to discover short-cuts to questionable pleasures like alcoholic drinks and drugs and other narcotics. We have persuaded ourselves to believe that they relieve us of pain and give us pleasue. We forget however, that seeming temporary relief of pain by itself is not necessarily a source of pleasure; nor have we gauged the full price we have been paying and the damage we have done to our own capacity as controllers of our own destiny by a permanent impairment of the very means of control in our brain and nervous system.

Poison

Ancients, of all countries such as Babylon, Egypt, India, China, Greece and Rome did say emphatically that 'alcohol' is a poison and should be avoided. Almost all religions also banned the use o drinks and drugs. Moral teachers, saints and sages have been against the use of such beverages. Even conquerors like Babur, emperors like Asok and Akbar, law-givers like Kautilya, Lycurgus and Manu have not only condemned drinks and drugs, but also made laws which hold good even now in one form or the other.

Now however, we have already stepped into the age of science and the testimony of science carries far more credibility than spiritual saints, religious preachers, moral teachers and experienced elders. Today we worship God-Science in the modern temples, the Laboratories. But when science too endorses what moral teachers have said, it is doubly forceful and must be looked upon as a mandate for human conduct and behaviour. Disobedience of such a fortified, reinforced mandate is lethal in its consequence to humanity. In due course we shall see what science says about alcoholic drinks.

In the meanwhile, let us see why many of us are still drawn to the poison, why it has acquired status, why most governments of the day try to fatten their revenues by encouraging this trade any why the clock of progress of evolving human beings is being set back to that extent.

Are we like the proverbial moths which fly close to the flame to be absorbed by it in fatal embrace !

Aldous Huxley, a great English writer of modern times, in the introduction to his novel 'Devils of Lovedon' has mentioned that man has always been attracted to what is called 'self-transcendence', and alcoholic drink has been one of the means. Of course, this term 'self-transcendence' which he has wrongly used is a very misleading one. It is especially so when it has to depend upon drinks or drugs like mescalin, or LSD or heroin. They induce hallucinating and psychodelic states of consciousness, no doubt. But self-conntrol is completely lost, both on the physical apparatus, the central nervous system and on the contents of consicousness, as in a dream. It is not merely self-foregetfulness which is induced, but the 'self' is handed over to the chaotic workings of the sub-conscious, without any control whatsoever. There is no trace of 'transcendence': But before one condemns those who are caught in the meshes of drinks or drugs on misleading pleas, one should learn to sympathise with their helpless lot in order to understand why they seek this kind of relief and supposed happiness in drink and drug.

Drink Evil—A Menace

The whole animal kingdom wishes naturally and tries its best to avoid all kinds of pain from whatever source it might be. The human being is on a higher level of varied consciousness and is exposed to sensitiveness of various kinds. He or she tries his or her best to be free from all kinds of discomfort, pain, sense of fatigue, anxiety, worry, feelings of obligation and/or responsibilty as well as of guilt and/or sin and of insecurity. Men and women would always endeavour to be free negatively from these and positively enjoy the opposites of the above-mentioned states of consciousness. It is in the course of this endeavour, that the drink and drug habits entered insidiously into the life of human beings, since historic times. One need not go into the varieties of drinks and drugs that were discovered and came to be used, from simple fermented stuff to highly distilled pure spirituous liquors.

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*Hony. Chairman, Gandhi Peace Foundation

At the same time, while some people took to these things there were keen observers enough, and law-givers as well as saints and moralists and religious people who could discern the evil effects of these poisonous substances. The injurious effects far outweighed whatever seeming temporary advantages were supposed to be enjoyed by the users. Wise people could therefore create a strong general public opinion against such drinks and drugs. It is thus that the general universal opinion against drinks and drugs forms even now, the background in all countries and climes. If drink-evil is a problem today in India, it is as serious a problem in U. S. A., France and even in communist Russia. The respective governments as well as the saner elements among the people are continuously making some efforts to curb the evil. Now let us see why in spite of such efforts, the evil continues and perhaps in some countries like India, it is growing into a regular menace to the well-being of the people who are prone to it.

The most tempting attraction of alcoholic drinks is the temporary self-forgetfulness and a number of myths which grew along with the habit. It was supposed to be food, having caloric value. It was given as medicine against cold. It was calculated to relieve persons from fatigue. It was given out that it promotes health and gives warmth, extra strength and vigour for more energetic work. All these myths have now been shattered by scientific experiments under controlled conditions. Any pamphlets and/or booklets published by scientists and by the World Health Organisation and by several other international bodies working for overcoming this evil, have proved that the above-mentioned myths have no scientific basis.

The Planning Commission of the Governmet of India appointed a study team on prohibition in 1963 chaired by Justice Tek Chand. Even a cursory glance at its report of 70 Chapters and a full probe into all aspects of this evil, can convince any reader how baseless and bogus are the claims made by protagonists of the drink evil.

The worst aspect of alcoholic drinks and drugs however, is that alcohol enters the blood and goes directly to the brain and attacks the central nervous system and loosens the self-control mechanism in the brain. It is addictive in the extreme and the ever-increasing nervous craving for it demands stronger drink, till the person becomes a slave to it. He loses all sense of shame and morality. He is not longer master of himself.

Devil's Dance-Drama

While a false feeling of relief, self-forgetfulness, and temporary unrestrainable euphoria is the first tempter in this dance-drama of the drink-evil, the second is what is called in fashionable circles as sociability. This companionate devil entered along with the British rule which brought this evil along with English education. Blind imitation of western manners and habits by our so called elite followed. Excise revenue too was the temptation for the rulers of the day. Megasthenese, Fa-Hien, Ibn Batuta and several other foreign travellers had earlier said that India was singularly free from drink. But once the British rulers tasted 'blood' of easy revenue and partial conversion of Indian elite to the social evil, both the evil and the revenue went on increasing. The self-contradicting dictum, 'maximum revenue and minimum consumption' still holds good even with some of our own governments as a great policy guide. Today the State Governments' hungry for revenue are reaping the highest benefit from license-auctioning on a competetive basis for manufacture and sale of alcoholic drinks. They are forgetting altogether the miseries, privations, ill-treatment, malnutrition that is spreading in the homes of the millions of wage-earners, especially of the poor and ignorant section of our people. This may be said to be a case of 'self-forgetfulness in excelsis', since not only the victim of drink is unaware of what is happening to him and his self-control and his home-life, but those engaged in providing him with the means too, have themselves conveniently forgotten as to what is happening to the victims of this unmixed evil.

In view of the overwhelming evidence of science against alcoholic drinks, the well-known damages and irreparable harm which follow from addiction, in the face of the opinion of world bodies like WHO and such other international organisations, few today venture to defend the drink evil. But the arguments put forward now are of a different nature.

To ban all drinking by law is against the basic right of individual freedom, it is said. This could hold good partially if the damage was restricted strictly to the individual. But today it is proved beyond doubt that drinking leads almost automatically to a number of lapses which have serious effects on the families of addicts, results in druken driving causing serious accidents, causes crimes of sex, theft, murder and what not. Another argument is, such a ban leads to bootlegging since drinking cannot be suppressed by law. This is an apology for poor and/or corrupt policing as well as against the experience that bootlegging is more rampant in wet areas and even in countries like France. The third arugument is, since people will drink, why lose revenue ? But studies in USA and some Western countries have shown that the drink revenue is insufficient to control drunken crime, and is not at all commensurate and sufficient to compensate for the total cost of the damage done to society on account of loss of man-hours, health of workers, accidents, crime and so on. One more argument would be, governments as such cannot play the role of moral teachers which is the legitimate duty of the religious institutions, social workers and others interested in the moral uplift of society. This argument could have held good when governments were merely police states holding peace as between citizens. But today governments even of the capitalist hue claim to be welfare states and what can be a greater welfare than trying to keep the self-control mechanism of human beings in perfect working order by saving it from using drinks and drugs which lift off all inhibitions when indulged in ? While all religions and social agencies have the responsibility of trying to raise the moral level of the people, it is the legal duty and the constitutional obligation, so far as

India is concerned, of helping the agencies mentioned above in discharging their duties effectively. No government can be morally justified in saying, we can go on licensing manufacture and sale of drinks on a commercial scale with an eye on revenue and let the other agencies take care of the people's drinking habits. An elected democratic government has to recognise that the total well-being of the people is a joint venture any contradictory or cross-purpose role is disastrous to all concerned and to the whole nation itself.

There is nothing in the world and in nature which is totally good or totally evil. A certain context makes things good or evil for human beings. Alcohol which is called Ethyl Alcohol (C-2 H-2 OH) is declared by the science of chemistry to be a poison and therefore an 'evil thing', and humanity is warned that it should not be drunk or used, except under qualified medical advice.

People's Agitation Against Drinking

One of the important items of agitation during the latter part of the British regime in India (1888) was the demand to ban by law manufacture and drinking of alcohol The British authorities pleaded that the excise revenue was being used for the education of the people. Things came to a head on a national scale when Lokamanya Tilak, the prophet of Swaraj, started a people's agitation against it in 1906, by picketing liquor shops in Pune. Gandhi went a step further, called excise revenue as 'tainted money'. He said, even if he were to be dictator for a single day, his first act would be to close all liquor shops

Since 1920-21 every active Congress member had to sign a pledge that he would abstain from drinking liquor and would uphold the policy of what is called 'Total Prohibition'. The Congress stuck to this policy through the period of its acceptance of office in 1937, under the Government of India Act of 1935. Even after the advent of Swaraj in 1947, the Congress as a people's national organisation continued the policy of Prohibition in its session of the All-India Congress Committee at Goa, and decided to proceed towards total prohibition within seven years.

See Saw Attitude

The 34 years of Freedom have witnessed a kind of see-saw attitude of State governments—Congress or other. It happens to be a State subject and two States, Tamil Nadu and Gujarat, held on to complete prohibition for years. Rajaji as Chief Minister first introduced total prohibition (1937) in Tamil Nadu and levied sales tax and proved that revenue was not an important consideration where the welfare of the people, especially of the poorer sections of the populace, was concerned. Practically speaking, for more than two decades and a half, Tamil Nadu could show that excise revenue was not essential for development and that Tamil Nadu could compete with other States in what is called 'development', with revenue resources other than the cursed 'drink revenue'. Till recently Gujarat also proved the same without any great difficulty. In between Bombay too could prosper without drinks. Under popular pressure and the powerful moral influence of social workers like Gokulbhai Bhat, Rajasthan also was ranking itself alongwith Tamil Nadu and Gujarat.

Good-bye to Prohibition

But alas! what do we see today? Prohibition as a policy, has been completely abandoned by practically all State Governments, and the Central Government is prodding them on to find more resources for so-called development—development which seems to have no priority or no consideration even for the moral, mental, and even physical well-being, especially of the poorer sections of the people. And this in spite of the Directives of State Policy (Art. 47) as laid down in the Constitution as follows:

> "The State shall regard the raising of the level of nutrition and the standards of living of its people and the improvement of public health as among its primary duties, and in particular, the State shall endeavour to bring about prohibition of the consumption except for medicinal purposes, of intoxicating drinks and of drugs which are injurious to health."

A Government which lays stress on its secular outlook may not heed what is of the highest importance in human goals, namely, spiritual development and enlightenment; it may not care for religious injunctions even if they be most helpful for normal human progress, they may not give too much importance to moral considerations though they are in fact the cement which holds together families, societies and associations and serve as a general binding force for humanity; they may not heed ethical norms either, which are essential between individual and individual But should they, the government, the legislatures, etc. not take to heart the words of the constitution which has brought them into existence, by which they swear, and on account of which they continue to function as a government of the people?

Science says, alcohol is a deadly poison, is no good in any sense, has no food value, does not lessen fatigue, but deadens the sensitiveness to fatigue which is far more dangerous than fatigue itself! If we as a civilised people, we as a people proud of our ancient culture, allow our citizens, young and old, men and women, the very flower of our manhood and womanhood to deaden their developed sensibilities—a result of millenia of evolution—even for a while, are we not setting the clock of evolutiton back and making them helpless playthings of deranged, euphoristic, rantlings and instruments of crime and meaningless quarrels and brawls ending in misery!

The devil which plays the game behind many a crime of sex, money, murder and what not, is the drink. The Inspector General of Police of Karnataka year before last recounted in a radio-talk from Bangalore how the cause of much of rash driving, criminality in sex and murder was drink of liquor, without any doubt. The question which every rationalist, one endowed with the faculty of reason of knowing what is good, beneficial, healthy, should ask himself, should humanity at this stage of its evolution allow this anti-evolutionary and deadening drug like drink to come in the way of the normal use of one's own faculties? Should it not be out of bounds for every child, man and woman and for every one so that sanity may develop without let or hinderance, without any divergent deviation into paths leading to lower levels of consciousness?

Tainted Money

Now regarding the revenue from drink, the bulk of it comes from the poorest of pockets. Rather than calling it 'tainted money' and so on in an emotional way, we are today in a far better position to say that the whole manufacture, sale and excise revenue from the license fee earned by the government, is one semi-conscious conspiracy of vested interests at the cost of the poor, helpless addict who has lost the sense about his own good regarding his health and home, his reasoning faculties and sense of judgement, his own duty to his family and society which has given him facilities to make his own way in life. The conspiracy is stage-managed and a good trade name is given to it, no doubt. But in a sense, it is an insidious exploitation of the weakness of drinkers who have been induced, attracted and enslaved by the addictive nature of alcohol. Once an addict, forever an addict, till he develops into a helpless creature or an alcoholic when he can be written off the role of normal human being. The pity of it is that the government is, as Justice Tek Chand, the great authority on this subject, has remarked only 'a minor partner'. He writes:

"The government as a tax-gatherer is only a junior partner entitled to 25 per cent of the sweepings; the balance of 75 per cent is retained by the senior partners, namely, middlemen—the contractors, the distillers, vendors, etc.; for the sake of getting one rupee as revenue, the State makes the drinker pay four times the tax.....Liquor tax does not take into account the ability to pay the tax. This is a feature which distinguishes the liquor tax from all other taxes."

Hooch Tragedy of Bangalore

At this jucture, one cannot but refer to the very recent 'hooch tragedy' of Bangalore in June. More than 300 men as well as women of the poorer classes succumbed to 'methyl alcohol' in a single evening. The Government, those who preach modest and controlled drinking and other virtues, even the bootlegger may try to excuse by saying that the 'drinkers' alone are responsible. But who introduced the 'drinker' to 'alcohol' which is an enslaving 'poison', by allowing its manufacture, its open sale. attractive 'ads' and making it a vogue and fashion and all that? It is the addictive nature of alcohol which makes a person crave for stronger and stronger liquor. He once begins, he is in the clutches of a nervehunger which drives him to any extreme and there are always bootleggers at hand, more so in wet States, to supply him with what he wants in any strength. It is almost a mad man's race, and almost a death-wise. Neither the government nor the powers-that-be nor the purveyors of bettled poison, nor the human society as a whole can wash off their hands of 'sin' in such cases by saying, what can we do? Individual freedom is there. Then why not allow suicide? But every civilized society takes care not to allow people to commit suicide. Should we not prevent our men and women from these avoidable temptations and from being caught in the vice-grip of alcohol which gradually enslaves them? We have to hang our heads in shame at such avoidable tragedies, preventable suicides which are a natural consequence of fostering the liquor trade for revenue purposes as almost the dominant motive. And yet, has the Government which has within its power and which has been enjoined by constitution of the land to save the people from the evil of drinks and drugs acted in a way which could wean the people from this evil by completely banning the manufacture and use of this addictive poison? On the other hand, neither the States nor the Centre seem to take a serious view of the situation even when a warning of the type of Bangalore tragedy takes place before their very eyes. The very meaning of a welfare state, a socialist state, is the prevention of man from falling a prey to his own weakness—and this weakness of being prone to addictive drink has been one of the most tragic one. We talk of educating the public. Even so, the government which has monopolised education, has to show the way by introducing anti-drink education throughout, declaring that liquor, alcohol, is a poison, and follow it up by keeping it out of sight, so that it can be out of mind one day.

Suitable Substitute

One more important plan is worth considering as a constructive suggestion in this matter. Assuming that relief is a necessity from pain, fatigue, etc., especially for those who labour hard and have no other means of overcoming the feeling of having been 'run down', is it beyond scientific research today to find a suitable substitute to 'alcohol' without its side-effects? When billions of rupees are being spent for military research, for drug research, for a safepill in connection with population control, why should it not be possible to save the poor, the harassed, the overworked from running to the liquor shop, be drunk and be damned? Cannot we save him from the degradation and dehumanisation the slavery he is subjected to perforce on account of the alcohol-drink to which he resorts? If a hundred tranquilizers are on the market beyond the pockets of the poor, is it impossible for human ingenuity and modern science to help the poor from his pitiable predicament to which our elite industrial civilization has condemned him. ☐

How to Live Long

CONTROL of aging should be started not when man has been caught by it, but from the moment of birth. One must maintain a correct diet, work actively, and be benevolent to people. These are longevity factors that can be controlled by man himself. When organising one's recreation it should be taken into account what work—physical or mental a person is engaged in. If he is engaged in mental work he needs more movement, more physical straining of the whole body. My mention of benevolence has not been accidental. Among the oldest people we encounter those who are kind and benevolent to others. Evil, lazy people, on the contrary never have long life span. An ill-disposed persons with a bad temper often develops hypertension with all its consequences. Therefore be kind—for the sake of your own long life at least.

(D. Chebotaryoy—Soviet Features)

Tasks Before The EXIM Bank

Dr. V. Agnihotri*

EXPORT-Import Bank commonly known as EXIM Bank, has been the pressing need of the exporters to assist them for expanding their trade efforts. The international trade has become a highly skilled field of operation that requires a special kind of infrastructural facilities, most important of which is the banking service. The need had, therefore, all along been felt for a new financial institution which apart from discharging the normal financing and other auxiliary functions could also function in the field of trade both as development bank acting as a promoter of exports and imports and a leading financial institution providing comprehensive merchant banking facilities. In a vast country like ours, the commercial banks and the nationalised banks have many social and national obligations and, therefore, differing priorities. For them, trade is not the only priority area and hardly an earning proposition.

Foreign trade during the Sixth Five Year Plan has been projected to grow at a rapid pace and exports alone are expected to grow by 9 per cent in quantitative terms. But, the world trade in recent years has witnessed a marked slow down with further acceleration in global inflation, instability in international money market and protectionist tendencies which caused sharp adverse movement in the terms of trade of developing countries like India. According to an assessment of GATT Secretariat the volume of world trade during 1980 is estimated to have increased by merely 1.5 per cent as against 6.0 per cent in 1979. Thus, the international trading environment is not good with the rapidly increasing trade and payment gaps in all oil importing developing countries and with increasing protectionism in the major markets of industrialised countries.

The deficit in India's foreign trade has shown a steep rise in recent years from Rs. 6,210 million in 1977-78 to an estimated figure of Rs. 5,500 million in 1980-81. This has been mainly due to the heavy import bill on account of sharp rise in the world prices of petroleum oil products and fertilizers. It is estimated that the aggregate value of imports of POL in 1980-81 at Rs. 52,000 million consumed almost 73 per cent of India's export earnings that year. But such imports are very cruical for the development of the country and would, therefore, have to be allowed.

In the final analysis, all imports are paid through exports. The Government has, therefore, adopted exports as the national objective with the supporting infrastructural facilities, banking, *inter alia*, being an important element for boosting exports. Hence the decision to set up an EXIM Bank.

Vast Role

The Export-Import Bank of India Bill, 1981 which has been passed by both Houses ot Parliament envisages a comprehensive role for the EXIM Bank, particularly in granting loans and advances by it, or in participation with any bank or financial institution whether in India or outside for the purposes of export and import trade. It is also intended to function as the principal financial institutions for coordinating the working of institutions engaged in financing the trade. It will have wide spectrum of business to perform which form part of the import-export trade, financing of research surveys, techno-economic studies in connection with the promotion and development of international trade and providing technical, administrative and financial assistance needed for the purpose. The EXIM Bank will also help in planning, promoting, developing and financing export-oriented concerns and disseminating market and credit information.

Promotion of Joint Ventures

In view of the importance India attaches to joint ventures, one of primary tasks of the EXIM Bank would be not only to render the much needed financial facility for the joint ventures but also as part of its promotional activities, provide the necessary capital to Indian partners to enable them to participate in the equity of these joint ventures. In view of the vastness of the country and large network of commercial banks, most of the short-term credit will continue to be provided by the commercial banks. It is in the field of export of capital and engineering goods which are normally exported on deferred payment terms as also the project exports that the EXIM Bank will bestow its primary attention. In the existing fierce international competition, the complexities of international trade require a variety of financial assistance which EXIM Bank alone would be able to provide in view of the very wide charter given to it and the flexibility that has been allowed in the matter of its operations.

It has been ensured that the EXIM Bank does not suffer for want of resources. Apart from Government providing it has a capital of Rs. 500 million and a soft loan of Rs. 200 million to start with—which will be supplemented every year both by providing additional equity and additional loan—the Bank has been permitted to raise resources from the open market both in India and abroad. It will also have access to short-term and long-term funds of the RBI, in addition to accepting deposits of longer duration from public.

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*Economic Adviser, Ministry of Commerce

The EXIM Bank will be managed by a Board of Directors which will consist of representatives of the Reserve Bank of India, Development Bank, Export Credit and Guarantee Corporation Ltd. and nominees of Central Government, Scheduled Banks and trade. The exporting community will be closely involved in all policy decisions of the Bank and to ensure this, four representatives of the exporting community would be on the Board of the EXIM Bank.

Export Development Fund

While preparing the charter of the EXIM Bank, Government have taken powers to ensure that it offers comparable services as are offered by other well-known EXIM Banks such as those of USA, Japan and Korea. However, in the matter of export credit insurance, it has been decided to keep export credit organisation separate from insurance institution. In fact, the charter of the EXIM Bank permits it to undertake more transactions than are permitted by some of the other EXIM Banks. The Bank will have a special Export Development Fund, an unusual feature compared to other EXIM Banks. This fund will be used essentialy for market intelligence, surveys and other promotional activities in addition to financing of such segments of export-import trade which are vital to the country and which other institutions may not be prepared to undertake.

India being the promoter of the trade interests of the under-developed countries, the EXIM Bank will also promote the setting up of similar institutions in other countries by participating in the share capital of such institutions.

It is expected that the EXIM Bank will be set up shortly and will be able to solve the banking problems of the Indian exporters to a great extent. This Bank would, no doubt, emerge as a powerful financial institution in the country.

(*Courtesy* : *All-India Radio*)

Sugar Plant Promotes Gobar Gas Plants

Dr. Girdhari Lal[*]

THE potential for setting up gobar gas plants on the basis of current cattle/buffalo population is estimated at 5 million. The target in the Fifth Five Year Plan was for 1,00,000 plants, actual achievement being 70,277 plants. It has now been fully realised that India just cannot afford to do without full utilisation of gobar gas potential.

Here is a success story of how the management of Daurala Sugar Works, Meerut sponsored gobar gas plants actively in Daurala|Mawana Sugar Factory Zones. From 1974 to June 1981, 434 plants have been constructed in 516 villages. Of the 226 plants constructed at Daurala, 119 are of KVIC model, 106 Janata Model and one all weather thermo control plant. Similarly at Mawana 127 KVIC model, 80 Janata model and one all weather thermo control plant were established.

The two sugar factories adopted gobar gas plants as a regular item of cane development in their programmes, since the farmers would be able to get much better manure for their sugarcane and other crops. Accordingly, some staff and finance were earmarked for its promotion. Indents were collected from farmers for setting up gobar gas plants by convincing them about the benefits. The cane development and agricultural development staff of the UP Government lent active help. The factory's staff helped to comply with the Government formalities. The raw material was collectively procured for all the plants. Work was undertaken in convenient lots and completed within a reasonable period. Then they were handed over to the cultivators in perfect working order. Various procedures of maintenance were also explained. In addition to above the factories helped the farmers by way of subsidy over and above the amount admissible from the Government. The level of help rendered during the last year is indicated below :—

Financial Help

Particulars	Capacity (Cubic Feet)		
	100	150	200
Cost of construction			
KVIC Drum Type .	5100	5700	6600
Janata Biogas .	3100	4100	4500
Financial Assistance Available From Factory . . .	600	800	900
From Government For Small and Marginal Farmers .	1125	1455	1000
For Big Growers . .	725	800	1000
Net Balance by Marginal Farmers } Janata Model	1375	1845	2600
Net Balance by Ordinary Farmers } Janata Model	1775	2500	2600

To achieve the goal of 5 million gobar gas plants in the country such a dedicated approach by organisations explained above is needed. □

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Dairy Development and Income Distribution in India (Part-1)

Naresh Dayal*

THE focus of rural development in underdeveloped countries was on crop production till recent times. With the emphasis on development of whole farm systems in recent times, the importance of livestock production is being increasingly realised. Livestock production is an essential subsystem of subsistence farming. So productivity in the subsystem has a bearing not only on the nutritional status of subsistence farmers in less developed economies but also on their levels of income. One of the lessons of the green revolution has been that the benefits of the new technology in agriculture have accrued in greater proportion to the big farmers. There has been therefore some cause for fear that the green revolution might accentuate the disparities between the rich and poor farmers and between better and less endowed regions. One obvious constraint in the new agricultural technology is the basic resource namely land. Given the high man-land ratios in less developed countries and with sincere and far reaching land reforms, it is not possible to provide all farmers with economically viable units of land. The alternative strategy for distributing the gains of development more equitably seems to be to increase opportunities in rural areas for off-farm employment. Secondly, subsidiary occupations, not based on land-holding, such as livestock production may be developed. In India a very large cattle population is concentrated. But cultural sanctions preclude the use of this cattle for beef. Policy makers and animal scientists maintain that dairying can be an instrument of change in rural India and can raise the income levels of the small and marginal farmers and landless agricultural labourers. How far can dairying be an instrument of economic and social change? To what extent will this class accept the new technology in milk production and marketing? How far have they benefitted from various programmes so far? These are some of the questions we propose to examine in this paper.

Misleading Statistics

Policy makers in India say that about 70 to 75 per cent of the households possessing cattle fall under the category of small farmers, marginal farmers and agricultural labourers. This is however a misleading statistics for it leads to the assumption that cattle holdings are concentrated in the hands of this section of rural society. However a large number of studies indicates that the number of milch animals per household increases with the size of holding. In a sample of twelve villages around Karnal town, Haryana, Kuber Ram *et al.* found that while the landless labour households possessed an average of 1.9 milch animals per household, rich farmers (over 20 acres) possessed an average of 5.8 per household. Data from some other studies are adapted and presented in the below given table.

Table 1

Milch animal per household by size of landholding

Location reported	Size of landholding			
	Landless	Small	Medium	Large
Surat (Gujarat) .	..	0.43	2.58	4.56
Kaira (Gujarat) .	..	1.8	2.1	1.7
Mehsana(Gujarat)	.	1.7	2.5	2.6
Bangalore .	0.73	2.12	4.13	10.46
Ludhiana (Punjab)	..	6.96	10.46	19.13
Karnal (Haryana)	1.4	1.8	2.8	4.7

The above table shows that a very large percentage of households owning milch cattle belongs to the category of small and marginal farmers and landless labourers. But the percentage of milch cattle owned by the medium and rich farmers is greater than that owned by the former category. Thus to say that households owning cattle belong predominantly to the small holder and landless class is as meaningless as saying that households owning land belong predominantly to the small holder class. For this is in fact true. In India 69.7 per cent of all operational landholdings in 1970-71 were below 2 hectares but accounted for only 20.8 per cent of the total area. But 30.3 per cent of landholdings over 2 hectares accounted for 79.2 per cent of the area. It is therefore highly likely that the distribution of the resource of milch cattle is as skewed as the distribution of the resource of land. Evidence also indicates that the cattle they do own are the least productive animals. This was pointed out by Nyholm *et al.* in their Bangalore study where they related productivity to the average price of animals owned by each category. The average price of crossbred cows belonging to poor non-cultivators is Rs. 804, that of medium scale farmers Rs. 1036 and that of large scale farmers, Rs. 1345. The results, given below, of the study by Desai and Varma in Surat district lead one to the same conclusion.

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* District Magistrate, Barabanki (U.P.)

Table 2

Average value of livestock per form by size of holding in 1967-68 and 1971-72

(Value in Rupees)

Size of holding (acres)	1967-68		1971-72	
	Buffaloes	Cows	Buffaloes	Cows
Less than 5	141.58	36.84	94.19	27.48
5—15	584.71	82.14	889.91	102.53
15– 25	881.65	164.70	1166.09	154 46
25 and above	1287.31	168.85	1770.02	196.15

Increasing Genetic Potential of Milch Cattle

If the incomes of small and marginal farmers and the landless agricultural labour are to be raised through dairying, it is essential to improve the productivity of their milch animals. Estimates of the average productivity of the Indian cow ranges from 157 litres per lactation to about 942 litres per lactation for Haryana. The average yields in experimental indigenous milk breeds like the Sahiwal have reached 2,200 litres of milk per cow per lactation. The yields of the non-descript breeds belonging to the poor farmers and labourers would undoubtedly be much less. One of the major concerns of the experts has thus been to increase the genetic potential of milch cattle. The upgradation of local cattle through selective breeding would take a long time. But cross breeding with exotic dairy animals like Jersey, Holstein-Friesian or Brown Swiss, it was estimated, would produce a new breed of cattle within one or two generations which would provide remunerative milk yields. A number of studies have shown that with increased yields, the unit cost of milk production will decrease, the profit margin which is currently very small will increase making milk production a remunerative and commercially viable occupation. Sundaresan has compared the cost of milk production at different levels between the Sahiwal and crossbred cows. He has tried to show that the latter is more remunerative. Other studies have compared the cost of milk production of buffaloes and crossbreds and again come to the same conclusion. Large scale cross breeding of indigenous breeds with exotic bulls was therefore undertaken in several regions of India under various programmes. In Kerala the response of cattle owners has been encouraging. But in most other areas the impact of crossbreeding has been disappointing, especially among the small and marginal farmers and landless labourers. There is under-utilisation of available exotic semen and the capital assets and trained manpower created for crossbreeding. The reasons for the lack of response are not difficult to find.

Risk Factor

Traditionally, Indian cattlemen reared animals which were good for draught purposes but poor as milk producers. With increase in demand for milk in recent times and the consequent commercialisation of milk production, the population of buffaloes has increased greatly. It signifies that Indian farmers consider buffaloes to be superior milk producers to cattle. Between 1951 and 1972 buffaloe population increased by 33.5 per cent while cattle population increased by only 15.1 per cent. Rajapurohit who has compared the sex ratios (female/male) of adult cattle and buffaloes effectively argues that Indian cattle owners kill female cattle and he-buffaloes through neglect and under-nourishment and maintain a greater proportion of bullocks and she-buffaloes, the former for draught and the latter for milk. The all-India sex ratio for adult cattle is thus 0.7607 while that for adult buffaloes is 3.6413. Farmers are thus hesitant to crossbreed their indigenous draught cattle with exotic dairy breeds as the crossbred male is considered to be inferior as a draught bullock to the indigenous one. Experiments conducted at the National Dairy Research Institute, Karnal have proved the inferior working capacity of the crossbred bullock in the Indian environment. Table 3 on the next page gives the results of these experiments. The crossbred males thus fetch a lower price in the cattle markets than indigenous males. Apart from their working capacity, the crossbred bullocks have to be fed a much better diet in terms of quantity as well as quality and are thus economically much less efficient than the indigenous bullock. Small farmers particularly have to maintain a pair of bullocks for a much smaller cultivated area than the medium or large farmers. For agricultural labourers too, the birth of an indigenous male calf is a source of income for he can sell it for a good price. But a crossbred male calf would fetch smaller returns. The risk factor in cross breeding is thus greater for the poorer dairy farmers.

Subsistence Farmers

Is commercial milk production with crossbred cattle an acceptable farming system in a small farm situation ? Sundaresan has developed a model for improved milk production using crossbred cattle. In this model he uses a 2-hectare plot, with 20 crossbred cows. He presumes that the entire plot of land will be used for intensive cultivation of fodder crop throughout the year. According to this model, the net return per hectare is Rs. 5,326 per year. However there are several factors which would prompt us to reject this model in a small farm-situation.

Table 3

Draught Power of Cross-bred and Haryana Bullocks

Breed	Season	Four Hours of Continuous Work Pulse Rate/mt Initial	 Final	 Difference	 Respiration Rate/mt Initial	 Final	 Difference	Area Ploughed in 6 hours (in sq. mts,)
Cross Bred	Winter	63	79	16	24	35	11	2970
Haryana	,,	49	60	11	23	35	12	3320
Cross Bred	Summer	60	78	18	34	60	26	2860
Haryana	,,	51	70	19	25	42	17	3070
Cross Bred	Hot	59	78	19	45	69	24	2440
Haryana	Humid	51	66	15	35	52	17	2903

Firstly, it is highly unlikely that a small farmer would devote his entire cultivated area to the growing of fodder crops. Small farmers in India are largely subsistence farmers whose cropping pattern is related to the consumption needs of their households. So the very basis of adequate availability of feeds and fodder, which may be all right on the experiment station, would not hold in a small farm situation. Secondly, the initial capital investment, which totals Rs. 76,300 for 20 cows, building, paddock and equipment is far beyond the means of any small farmer. Even if institutional credit was available to the small farmer the level of risk would be too high for the small farms. The given investment which is more than seven times the projected net returns per year from a two hectare farm is too high to overcome the risk factor. Thirdly the model pre-supposes a high degree of management, of skill both in the rotation of fodder crops and in the management of the cattle. These management skills are just not available in the small farm situation. Once the quality of management is removed it is difficult to presume an average lactation yield per cow of 3000 litres with a calving interval of 15 months as has been done in the model. It is thus highly unlikely that this model is applicable in a small farm situation. Other attempts have been made to develop optimal production patterns for different farm sizes. One such study done by Kahlon *et al* in the Punjab indicates that even with the optimal recommended plans, the percentage increase in income over existing farm plans, is much greater for large farmers than for small farmers.

Constraints

There are some other constraints in motivating small and marginal farmers and landless labourers. Nyholm *et al* found in the Bangalore milkshed that although artificial insemination was offered free of charge, crossbred cattle were distributed very unequally among the different size groups of farmers. Most of the crossbred cattle were owned by large and medium farmers and very few by poor non-cultivators and small farmers. Moreover the crossbred cows belonging to big farmers were giving higher milk yields than those belonging to the smaller farmers. Only one quarter of the crossbred cows belonging to small farmers and landless labourers were yielding any milk at all. But more than half of those belonging to medium and large farmers were in milk. The cause of the differences in yield was the level and quality of feeding by the different categories of cattle owners. The traditional fodder for livestock in the area is rice and ragi straw. Most farmers did not grow green fodder as they preferred to grow food crops like rice or cash crops like sugarcane and vegetables on irrigated land. There was a great variation in the feeding of concentrates among landless labourers, small farmers and the rich farmers. Since concentrates were expensive they were used much more by the bigger and richer farmers than the small ones.

The study of the impact of the Indo-Swiss Project in Kerala by R. K. Patel *et al* does not make a study of the difference in different size/class of holdings among farmers. But it indicates that the full potentiality of the cross-bred animals could not be exploited owing to the constraint of cattle feed. In the case of tea garden labourers, who were in effect the landless labour, the constraint was mainly of protein supply as they did not use concentrate; while the constraint in the case of small farmers in the plains and settlers in the hill tracts was of green fodder.

Milk Yield

Another study in villages around Karnal, Haryana in 1972—74 by K. N. S. Sharma *et al* indicate that the average milk yield per day per milch animal tended to increase with the size of holding. This variation

(Continued on page 38)

Urban Development and Environmental Protection

Narayan Datt Tiwari*

WITH our efforts to modernise, develop and provide the citizen with the minimum basic needs—food, shelter, employment etc., there is a need for careful environmental planning and conservation. Development has to be in consonance with different eco-systems, so that benefits derived from the natural resources do not lead to obliteration or reckless use (or consumption) of precious resources.

The Planning Commission is conscious of the need to have an environment-oriented development process. Environmental protection is an important dimension for plans and programmes in every sector. The objectives for such an approach have been mentioned in the Chapter on Environment in the 6th Five Year Plan 1980—85 document and our concern for national development to proceed along a rational and sustainable path have been emphasized.

The Government of India has recently set up a Department of Environment as an important instrument of action, which is in recognition of the pivotal role that environmental conservation plays in national development. It will serve as the nodal agency for various measures to promote environmental protection and eco-development in a coordinating and scientific way. Further, to provide the planning and expertise necessary in the tasks of the Department and of other central and state agencies, a National Committee on Environmental Planning (NCEP) has been constituted.

A Land Commission has also been set up to provide policy planning, coordination and monitoring aspects, concerning scientific management of land resources. Boards have been set up for prevention and control of puollution of water and air systems backed by central legislations in the matter.

In the Plan, emphasis has been laid on integrated development of small and medium towns, both in central and state sectors, to provide the necessary complementary development process for the rural economy and to sustain urban inputs for rural development. This would ensure effective productive linkages between the urban and rural economies, and provide support for employment as also the basic minimum needs to the economically backward sections of the society. Similarly, the Plan envisages environmental improvement of slums instead of relocation of slums.

Provision of Water Supply

In the context of the global efforts to provide "Health For All" programme by 2000 AD, and the International Water Supply and Sanitation decade (1980—1990), efforts to provide water supply and sanitation in urban and rural settlements have assumed importance for us. The Plan development programmes are oriented to providing minimum drinking water facilities to the entire population by 1990 and reasonable levels of sanitation in cities and villages. Realising the environmental problems of discharge of untreated domestic sewage into river basins, programmes have been structured for sewage treatment facilities in major urban areas to reduce this pollution load. Such measures for control of water and air pollution would ensure environmental protection. Through the appropriate functioning of Statutory Boards and enforcement by law, reduction would be brought about in the level of pollution in the air and water systems over a period of time. Considering the size of our rural population and settlements we would at least aim at 25 per cent of the rural population being covered by sanitation measures.

All these enviornmental imperatives are aimed at reducing the various forms of environmental degradation from the growing pressures on our natural resources from human and animal population. As examples of drastic degradation one could refer to the sub-Himalayan tracts, the Western Ghats, the plains and forests of peninsular Indian coastal area. The perception and understanding of these problems by society, by government and the political system, are indeed crucial for achieving these environmental imperatives. The CHIPCO movement need not be viewed as a local or sub-Himalayan regional problem; it is an illustration to all who have a concern for the over-exploitation, overuse and misuse of the natural resources with disastrous consequences to man, his home, his activities and his very sustenance. Forests, their vegetative cover, wildlife are not only good indicators of health of land, but also of the wealth of resources available for various life supporting systems and activities. Nature conservation and preservation of natural eco-systems are vital to preserve the physical identity and integrity of the country. □

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*From the Key-note address of the Minister for Labour and Heavy Industry at the annual meeting of the Institute of Town Planners, New Delhi, August 1, 1981

Cover Story

ICRISAT at Work

N. D. Batra*

THE International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit making agricultural research centre. The Institute aims to improve crops and farming systems in the semi-arid tropics (SAT). The SAT is the home of 600 million people in 50 countries on five continents. Spread over 20 million square kilometres, the region covers India, parts of South-East Asia and the Middle-East, two wide belts of Africa, areas of South America and much of Mexico and Central America.

Generally speaking, modern technology has reached but slightly the farmer of the semi-arid tropics. He uses little fertilizer and the soils he tills are often eroded and depleted of nutrients. The power he utilises is almost always that of animal or human; his own productivity and that of his animals is by and large low. Further, he uses the traditional agricultural implements and so the yield is invariably low.

Limited Water Resource

Above all, water is limited in amount and distributed during a short rainy season (sometimes three months or so) and that too in unpredictable, erratic and frequently intensive storms that erode his land. In most cases, the SAT farmer has no efficient method of storing the run-off water and re-using it later as life saving supplement for crops.

Pests and diseases attack his crops and diminish his farm output. But he has learnt to depend upon the traditional cultivators (cultivated varieties) which ensure a crop in most seasons, even if they bring him low yields.

Despite these inherent obstacles, the SAT farmers prouce more than one half of the world's sorghum, at least 80 per cent of the pearl millet, 90 per cent of the chickpea, 96 per cent of pigeonpea and 67 per cent of the groundnut. Yields of these crops in the SAT are only one-fourth to one-half of those in the developed world. Yet these are the crops that sustain life in the SAT.

Realising this, in 1971 the Consultative Group on International Agricultural Research (CGIAR)—a consortium of nations and organisations formed to increase food production in the developing world and brought together by the World Bank, FAO and the United Nations Development Programme (UNDP)—surveyed the problems and potentials of the non-irrigated semi-arid tropics. They decided to create a special research institute to tackle the job of improving these crops so essential to the life in the SAT.

The ICRISAT was formed one year later in July 1972 in Hyderabad in the heart of the SAT, out of 20 potential sites in Africa and India. The Government of India provided 1394 hectares of land near the village of Patancheru in the State of Andhra Pradesh for the experimental farm. The area comprises nearly equal parts of *Alfisols* (red soils) and *Vertisols* (black soils), two of the important soil groups of the SAT. The site now known as 'ICRISAT Center', is 25 kilometres north-west of Hyderabad on the Bombay Highway.

The Institute's campus—a modern complex of laboratories, administrative offices, housing and support units—covers a 40-ha. section of the farm.

Primary Objectives

Development of the Institute began with talent drawn from foundations, international development agencies and the Indian government. The Institute has the following primary objectives :

- To serve as a world centre to improve the yield and nutritional quality of sorghum, pearl millet, pigeonpea, chickpea and groundnut :
- To develop farming systems which will help to increase and stabilise agriciultural production through better use of natural and human resources in the seasonably dry tropics;
- To identify socio-economic and other constraints to development in the SAT and to evaluate alternative means of alleviating them through technical and institutional changes;
- To assist national and regional research programmes through cooperation and support and to contribute further by sponsoring conferences, operating international training programmes and assisting extension activities.

Farm Power and Equipment

Special attention is being given to the use of animal power which is prevalent in many parts of the SAT. More emphasis has been placed on the adaptation and and use of an animal-driven wheeled tool carrier. It provides the basic unit of a complete set of implements needed in an improved crop production system. The obvious choice has been a small low-cost bullock-cart used in parts of Central India. This has been further modified to incorporate tool-bar with a mechanical lifting and lowering system and a 150-cm wheel track. These implements when mounted on a tool-bar are simpler, smaller and lower in costs than the conventional Tropicultor.

Collaboration has also been started with the National Institute of Agricultural Engineering, UK, to develop a low cost animal drawn wheeled tool carrier. Adjustments and fabrication methods that can be easily utilised by relatively small farmers are being experimented.

Similarly, a suitable fertilizer distributor is needed as a part of complete system of machinery both at the Institute and the Village Level Studies. Investigations have shown that the use of an auger consisting of a hopper with a capacity of 6 kg. of fertilizer and an easily removable Acme threaded supported on nylon bushes is best suited for the purpose.

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*Yojana staff member.

Double Cropping

The ICRISAT has demonstrated that two crops can be grown on the same piece of land now producing only one crop in much of the SAT. Traditional deep *vertisols* are alowed to lie fallow during the monsoons. This system results in serious run-off and erosion of the total available water. Recent experiments have shown that sorghum|pigeon-pea inter-cropping can give appreciably higher yields than single cropping. Further, intercropping not only gives higher yield to the farmer but also enhances the stability of the yield.

Water Management

Management of rain-water is the key to increased and stabilised production, especially in the semi-arid areas. Methods to collect the run-off water and to re-use it for life-saving irrigation at the most critical state of crop growth or for increasing cropping intensity and crop production, are essential for stablisation of agriculture. Rain-water harvesting also helps in reducing soil erosion and in minimising flood hazards which sometimes become national calamities. It can also mitigate the hardships from draught.

As a step towards this water management, a 12-hectare watershed was developed in the red soil of Aurepalle village during the dry season when draught animals were customarily idle and labourers unemployed. The farmers were also involved in the planning activities. These consisted of removal of stones and bushes, a thorough cultivation, land smoothening, drainage construction, layout and establishment of semi-permanent broadsheds. An old well was renovated to provide supplemental irrigation to a limited adjacent area. The whole project cost less than Rs. 450 per ha. In the watershed area sorghum, castor and millet|pigeon-pea were grown, which resulted in much better output than those by traditional methods. Similar projects are under way on a 11-ha, black-soil watershed near the villages of Kanzara and Shirapur.

Extension Work

In the field of research, the ICRISAT works closely with the Government of India and State Government. The Director General of the Indian Council of Agricultural Research is a member of the Institute as is the Chief Minister of Andhra Pradesh. Lately, Secretary of the Union Ministry of Agriculture has also been appointed to the Governing Board, further strengthening the linkage between the ICRISAT's research and Indian Government's programmes in extension and development.

Apart from providing the present site for the Institute, the Central Government has helped to develop cooperative research sub-stations at agricultural universities in four separate and distinct regions of the country. The regions provide the range of environment required for work on improvement in sorghum, pearl millet, pigeon-pea and chick-pea. These sub-stations are located at Bhavanisagar (Tamil Nadu), Hissar (Haryana), Dharwad (Karnataka) and Gwalior (Madhya Pradesh). With these sub-stations the Institute can now fulfil its obligations to some of the African SAT regions . It can carry out breeding work on resistance to diseases and pests for which conditions at Patancheru are not suitable.

At the same time, long-term arrangements for an off-season chick-pea nursery are under way with the State of Jammu & Kashmir. Meanwhile exploratory trials are in progress at Taparasaipura Farm near Srinagar with the cooperation of Farm's Agricultural Unit and Jammu & Kashmir Department of Agriculture.

It has also enlarged its on-farm research activities on farmers' fields in Sholapur, Akola and Mahaboobnagar districts in cooperation with Government of India Research Agencies and State Agricultural universities. So the Institute has intensified cooperative research projects in collaboration with the All India Coordinated Dryland Project at Sholapur, Bangalore, Hyderabad, Indore, Bellary, Vijapur and Ranchi

Besides, the Centre has intensified its crop improvement programmes with the All-India Coordinated Programmes on sorghum, millets, oilseeds and legumes. They participate in workshops. exchange elite material, coordinate joint trials and germplasm collection missions and arrange field days for Indian scientists to visit the ICRISAT experiments.

Some of the promising material from the Centre have alread entered mini-kit trials on farmers' fields. Among these mention may be made of pearl millet line WC-C75 to develop new hybrids and varieties with specific characterics. Another example is of hybrid MBI 119—now a leading hybrid of millet.

However, the interaction between the Centre and the Indian programmes is not a one-way operation. The ICRISAT has gained immensely from these exchanges which have been marked by a growing sense of participation and mutual cooperation. A unique example has been in the area of cooperation between the Andhra Pradesh Agricultural University (APAU) and the Centre in launching post-graduate studies in dryland farming. For this purpose, the ICRISAT and APAU scientists meet annually to review areas of research of common interest and to share materials and exchange ideas.

The Centre has signed similar agreements for mutual cooperation with the Haryana Agricultural University, Hissar, Tamil Nadu Agricultural University, Coimbatore, University of Agricultural Sciences, Bangalore, Punjab Agricultural University, Ludhiana and Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur. On farm research is co-ordinated with the agricultural universities particularly at Akola, Parbhani and Rahuri.

A major part of ICRISAT's effort is focused on southern Asia where nearly two-thirds of the population of the SAT is concentrated. The Center is expanding its cooperative research activities with Bangladesh, Pakistan, Nepal and Sri Lanka, providing technical assistance, training and breeding materials to their scientists and exchanging with them germplasm and international nurseries of particular interest to them.

Recenty, the Institute has extended its work to South East Asian countries, particularly. Thailand, the Phillippines and Indonesia. Among these, increasing interest has been shown by Thailand in sorghum and farming system research. The country has success carried out some exploratory research in Chick-pea, pigeon pea and groundnut. They are interested to use relevant farming systems technology to exploit the potential of soil and water in rainy or dry periods. Likewise, the Centre receives generous back up and logistic support from Mexico for its project on high-altitude cold-tolerant sorghum project. The Institute utilises testing facilities available in that country.

Achievements

Since its inception in 1972, the ICRISAT has made significant progress in all areas of its mandate. The Institute has succeeded in identifying new pearl millet lines that combine resistance to all the three yield reducing diseases of downy mildew, ergot and smut. For sorghum it has provided a range of germplasm and breeding material incorporating resistance to the parasitic weed, shoot fly, stem border and charcoal rot. For pulses, the Centre has released pigeon-pea breeding material with immunity to wilt and blighat. They are developing new selection free from pests, drought, water-logging and salinity. For groundnut, a new germplasm collection with a wide range of genetic diversity and resistance to major worldwide diseases of leaf pot, rust and fungi, has been produced. Alongside, it is expected to develop wider knowledge of pests and diseases of groundnut and this improves its nitrogen-fixing powers.

In farming systems, the soundness of the water-shed system of the black soil is worth a mention. Similarly it is hoped to develop effective system for red soils of the SAT and new methods for quickly identifying intercropping systems that will substanially enhance per acre yield advantages over single crops. Towards this end, ICRISAT's scientists work in inter-disciplinary teams in their effort to develop new high-yielding varieties that can grow under near-drought conditions and low or no input of fertilizer or pesticides.

Agricultural research takes many years to reach the small farmer. But the SAT farmer is strong, patient, resilient and has waited for a long time. The ICRISAT is confident that it is well on the road to reaching him in the not distant-future. □

Haryana's Programme In IYDP

THE Social Welfare Department of Haryana carried out a house to house survey. According to this survey there are 42778 handicapped persons in the State, out of this 4373 are deaf and dumb, 8487 are blind, 2399 mentally retarded and 27519 are orthopaedically handicapped.

A High level Committee has been set up under the Chairmanship of the Chief Minister, Haryana. This Committee has members drawn from various sectors, like the medical field, industrial sector, administrators, field officers, representatives of voluntary agencies working for the handicapped. The High level Committee has constituted three Sub-Committees one for Orthopaedically handicapped, one for blind and one for deaf and dumb to prepare a detailed plan or action for different persons. The Sub-Committees also have experts drawn from different fields as member.

In the preparatory year for the handicapped, voluntary agencies were mobilised to take up a Home for Mentally Retarded Children at Rohtal. Home for Blind Girls at Sonepat and Training Centre in Light Engineering Goods at Panipat, were prepared in close consultation with Department and the Government of India has since approved these Projects. In addition, a Unit for partially handicapped has also been sanctioned by the Government of India be set up at Ambala through the Red Cross Society.

In addition. Projects prepared by Red Cross Societies. Kurukshetra. Faridabad, Ambala and Deaf Centre. Gurgaon for setting up different workshops ad Units for partially-handicapped and Artificial Limb Centre, have been recommended to the Government of India.

A number of concession for the blind have been announced by he Government. These include sitting up of braille libraries, at various places in the state. free travel concessions in Haryana Roadways, Transport allowance, preference in the allotment of government accommodation, unemployment allowance to those blind persons who are educated but are unemployed. Further more, reservation of 3 per cent has been made in Government jobs for the handicapped persons, one per cent for each category on handicapped (Blind, deaf and dumb and Orthopaedically handicapped).

A High Power Committee under the Chairmanship of Chief Secretary Haryana has been constituted for locating jobs for blind in Government offices with three SubCommittees under the Chairmanship of Financial Commissioner (R), Financial Commissioner (Home) and Financial Commissioner (Cooperation) with members from almost all the Department.

In addition to the above there are programmes which are already being run by the Department for the handicapped. The Department is at present running a residential school for blind boys at Panipat upto the Matric level where 60 boys are being educated. A vocational Training Centre for adult Blind is being run at Sonepat where training is imparted in music, braille and canning. Scholarship ranging from Rs. 45 p.m. to Rs. 185 per month are being provided to physically handicapped persons studying in various classes from 1st standard to M. Phil. In addition, financial aid is also given to voluntary agencies working in the field of physically handicapped. Pension|allowance of Rs. 50 p.m. to extreme cases of disability are being given. □

India's Oldest Legislature

Centenary of Karnataka Assembly

Sethur Rao S.*

Dewan Rangacharlu

THE many splendoured princely State of Mysore, once described by Mahatma Gandhi as "Rama Rajya" which lost its identity following the reorganisation of States on November 1, 1956 had many 'firsts' to its credit thanks to the farsightedness of benevolent rulers and able administrators.

Mysore was the first in Asia to produce electricity by harnessing water and the longest transmission line in the world was constructed in the State over seven decades ago. Mysore was the first princely State in India to set up a legislative assembly with people's representatives in it. Incidentally this popular assembly is completing its 100 years of existence on October 7, 1981.

The Legislative Assembly popularly known as Representative Assembly was set up on October 7, 1881. The history of this pioneer institution is quite interesting indeed. The person who dared the mighty British to establish this popular institution was Chettipanyam Veeravalli Rangacharlu, the Dewan of the princely State of Mysore.

Origin

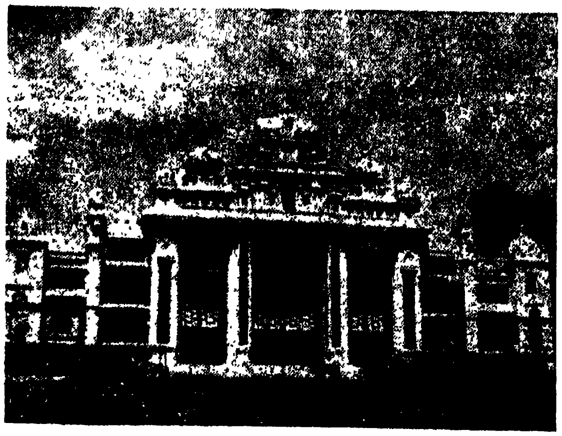
Misrule and rebellion in some parts of Mysore was a pretext for the British to depose the native ruler, Maharaja Krishnarajendra Wadiyar III and take over direct rule of the State for fifty years for 1831 to 1881. However, in 1881, the British yielded to pressure and restored to the ancient Hindu royal family the rule of the State. With a view to checking the recurrence of misrule and rebellion, they imposed certain conditions before installing the new Maharaja on the ancient gaddi.

One of the conditions was the constitution of an Executive Council, headed by the Dewan to advise the Maharaja on administrative matters. While endorsing the conditions, the Chief Commissioner of Mysore, Sir James Gordon, suggested that the Executive Council be supplemented by a deliberative assembly composed of eminent retired officials, representatives of great families of various sections and interests of the people and all the proposed important legislative measures and measures of administrative reform and budget appropriations of public money be placed for discussion and opinion before this assembly. But the British Government felt it was premature to do so, in the beginning, since it was an institution which had not yet been tried in British India and was not known to have succeeded elsewhere.

On March 25, 1881, at a Durbar held at the Palace in Mysore, Maharaja Chamarajendra Wadiyar was invested with full ruling powers and Rangacharlu was appointed Dewan.

Dewan Rangacharlu was largely influenced by John Stuart Mill's book. "Representative Government," while he was pondering over the idea of a people's assembly. When he was a Deputy to Sir James Gordon, the Chief Commissioner, he had unfolded his plan to him who not only supported it but also most enthusiastically pressurised the British to accept the same.

On March 29, 1881, i.e., barely four days after he became the Dewan, Rangacharlu called a meeting of principal farmers and merchants of all over the State for the purpose of discussing and exchanging views on public matters. It was decided in this historic meeting to set up a Representative Assembly.



Jagmohan Palace, Mysore, the venue of 'Dasara' Session

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* Our Editor

Athara Kacheri, Bangalore, the venue of 'Budget' Session

On August 25, 1881, the Government issued an order defining the nature and constitution of the Assembly. The main function of this Assembly was to present the wants and grievances of the public, but it had no legislative powers.

Historic Session

The historic maiden session of the Representative Assembly was held in the city of Mysore on October 7, 1881, at the conclusion of the Dasara festivities. 144 members representing farmers and merchants attended the first meeting wearing their traditional dresses. On one side sat these "people's representatives" and on the other, facing them sat the high priest of the administration, Dewan Rangacharlu, flanked by Members of the Executive Council, T.R.A. Thumboo Chetty, Purna Krishna Rao and A. R. Sabhapati Mudaliar. The four Secretaries and other high ranking officials sat behind them.

Dewan Rangacharlu, who presided, in his inaugural address explained the principal object aimed at in the establishment of the Assembly, said: "His Highness hopes that by this arrangement the action of the Government will bring greater harmony with the wishes and interests of the peoples".

It is interesting to note the administration of Mysore had realised hundred years ago the need for checking the population growth. For, Dewan Rangacharlu in his address expressed concern at the rapid population growth which hampered production. He felt that this resulted in increase of want and poverty.

After listening to the Dewan's lengthy address, the people's representatives put lively questions about the administration, criticised the lapses of the officers and demanded redress of grievances and benefits for their localities. The top officials answered the questions, promised redress or enquiry. Orders were often passed then and there. Top officials who behaved arrogantly towards the people's representatives were chided by the Dewan.

Selection of Members

How were the members selected ? In the beginning, members were chosen as follows : The local boards were to select from among themselves and others of their districts their representatives. The Deputy Commissioners of different districts were to select one or two cultivating land holders who were influential and had good general knowledge to represent each taluka. Besides, three or four leading merchants from each district were nominated to represent the interests of the merchant community. On experience gained, the Government from time to time framed further rules regarding the qualifications of members for being eligible for selection.

In 1882, at the second annual session of the Assembly, Dewan Rangacharlu complimented the members on the moderation and practical good sense which had characterised their discussions and drew attention to "the several measures of useful and necessary reform which had resulted from them".

In 1890, the elective element in the Constitution was introduced. Announcing this, Sir Kumarapuram Seshadri Iyer, who succeeded Rangacharlu as the Dewan, praised the good work done by the Assembly.

For the first, time, the Maharaja of Mysore opened in person the Assembly in 1903 and paid handsome tributes to it for consolidating a sense of common interest between the government and the people.

In 1916, the Maharaja sanctioned holding of a second session of the Assembly every year. One was known as the 'Dasara' session and the other as the 'Budget' session.

The establishment of a popular assembly was vehemently opposed at first by the British but also by critics of Dewan Rangacharlu. The critics felt that the people did not have the required preparation or education for representative political institutions. They described the Dewan's action as an attempt to gain cheap popularity.

At that time, there was no other popular Representative Assembly in India. Even a political organisation like the Indian National Congress was yet to be born. It is interesting to note that the British Government decided to introduce a comprehensive self-government scheme in local matters throughout the British territories in India, only after the Mysore Representative Assembly was established. In fact, the British Government's despatch containing the orders was issued on May 9, 1882.

The work of the Assembly attracted wide attention. The Viceroy of India, Lord Lansdowne, who visited Mysore in 1892, was gratified to note the manner in

Vidhana Soudha, Bangalore, the venue of Karnataka State Legislature

which the Assembly was functioning. He complimented the Maharaja for his statesman-like instincts.

India's Reichstag

A British M.P., Keir Hardic who visited Mysore in 1909 likened the Assembly to the Reichstag in Germany and praised the wisdom of Dewan Rangacharlu for founding this institution, in one of the debates on Lord Morley's reforms in the British Parliament.

If Rangacharlu was the first Dewan to preside over the Assembly, Sir Arcot Ramaswamy Mudaliar was the last one to do so. For, with the country's Independence, Responsible Government was ushered in Mysore State and Sri K. C. Reddy became the first popular Chief Minister and leader to preside over an Assembly session. With the holding of the first General Elections throughout the country, the new system pushed into oblivion the old system. With that the Representative Assembly made its last bow.

If Rangacharlu, in 1881, founded the first Representative Assembly in India, Sir Mirza Ismail, a former Dewan of Mysore and later the Dewan of Jaipur State, in 1944 founded in Jaipur the last Representative Assembly in India before Independance. ☐

Evolution of the Jaipur Foot

Dr. P.K. Sethi

WHEN we first started a workshop in our hospital in the Jaipur Medical College, we were making artificial limbs which conformed to Western designs. This is what is being done in the rest of the country. Having used these designs for a couple of years, I started running into many of our older patients who had discarded the limbs, and had gone back on crutches. Jaipur, being a small town, it is easy to run into your old patients, and I suppose that was one advantage I had over people who may be working say in Calcutta, Bombay and so on. Any way, we were disturbed by this fact, and on making enquiries, and questioning these patients why they had discarded the limbs, a whole series of issues emerged. This really was based on a completely different life-style of our own peole as compared to the people in the West. If I can quickly explain, for instance, the vast majority of our people do not wear shoes, or wear open chappals and so on. In the West, everyone wears shoes. Now this immediately means that the foot-piece of the artificial limb in the West is made in such a way that it is hidden in a shoe, and it is protected by shoe. But if you take the shoe away, the artificialness of the foot is immediately revealed. It is made of a material which can very rapidly wear out. So, one of the first things we felt was that foot-piece should be made in a way that shoe is not necessary, and it should look like a normal foot. In other words, the cosmetic features. In addition we are a people who sit on the floor, we squat on the ground we sit cross-legged, we walk on uneven gound, which means the foot has to adapt to the uneveness of the slopes of the ground. These are the problems which are not faced in the West, and therefore, they never provide for it. In other words, there were a number of design features in the Western foot-piece which made it ill-suited for our own people and so I felt that we should modify this, and tailor it to our own needs.

The Jaipur foot is different in appearance. It is different in the materials used because it is made of very sturdy material so that our peasants and farmers can go back and work in the fields and plough their fields bare foot without the foot getting destroyed, and it has got mobility which allows a person to squat on the floor, sit cross-legged on the floor, and all these movements require a lot of mobility in the foot, and it can adapt to all kinds of uneven surfaces ; the people can climb trees and can climb hills; do almost everything.

It is a composite design ; there is wood in it ; there is microcil rubber in it, but the external covering is roughly the same material as is used in car types which is a very durable material.

Five years ago we were fitting roughly about 60 limbs a year which would roughly come to five limbs a month. But during the last five years, there has been a tremendous increase in the number of people wanting to come to Jaipur. So that in 1980, we were fitting around 1,500 new limbs a year, and this year I expect that we will probably reach the 2,000 mark, which makes it without doubt, the largest civilian limb fitting centre in the country.

Therefore, I think our limbs are the cheapest available in the country. The cost would be rougly about 150 rupees which, as you know, is roughly the same cost as the pair of good shoes. And, above the knee, it is about 250 rupees. ☐

(From an interview over AIR by Dr. Sethi, the Magsaysay Award Winner)

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The Great G

Special Article

THE oil crisis of the early seventies marked the end of the era of cheap energy with traumatic effect for the global economy. As the world began to adjust itself to a transition to high cost energy, the realisation also came that oil would, in the not distant future, phase itself out as the principal conventional energy source because of the depletion of reserves. This has lent urgency not only to efforts to discover new areas with hydrocarbon resources, especially in developing countries, but also the search for alternate energy sources, that is new and renewable forms of energy.

While the oil crisis effected both industrialised and developing nations, the latter wore hit more severely and have had to pay a very high price slowing down their economic development. At a time when they need more oil and other commercial energy supplies like coal and power for the growth of their "modern" sectors, the oil-importing developing countries are faced with uncertainties about availability even at higher prices. Their commercial energy use in the next two decades is expected to grow by 30 per cent.

Simultaneously, the third world is being overtaken by another energy crisis, the rapid exhaustion of forest resources which provide the fuelwood which, with animal wastes, constitutes the household energy for the vast majority of population in rural areas. Poorer countries rely for one half to three quarters of their total energy supplies on these renewable sources. Expert studies indicate that forests in developing countries are being consumed at the rate of some 10 or 25 million hectares a year and this cannot but have grave ecological consequences.

Energy Prospects Grim

Energy prospects for the developing world are, therefore, grim on both counts—higher prices and scarcity of oil for industries and transport and other "modern" sectors and spreading deforestation reducing the stock of fuelwood available to the rural poor for cooking food. Energy has become so basic to development, and no economy, least of all the developing countries, can sustain itself without adequate sources of energy with certainty in supply and predictability in prices. Energy has thus become one of the major issues in international economic negotiations that are still to get seriously under way. Lack of resources has hindered development of conventional sources by the poorer countries increasing their import dependence. Of 133 developing countries, 90 have no oil at all.

A world consensus is yet to emerge on preferential access to sources of energy supply for oil-importing poor countries. Global consumption of commercial energy shows that industrialised countries consume some 80 per cent and the share of the developing countries account for some 15 per cent. Most commercial energy use in developing countries is limited to the islands of "modern sector" in each country.

1. *Animal Energy.*
2. *Solar Heaters.*
3. *Windmill.*
4. *Rajasthan Atomic Power Plant.*
5. *A Dense forest near National*

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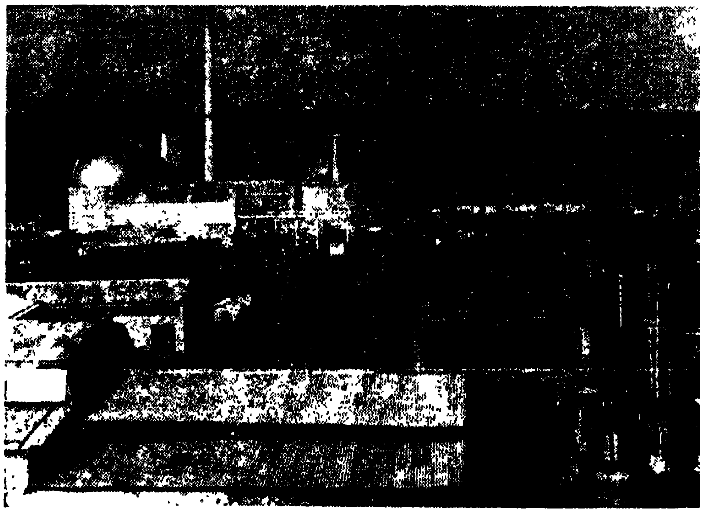

Taking both conventional and new and renewable sources of energy to the total energy supply in the world, 85 per cent is made up of commercial energy. The share of new and renewable sources will have to rise from the present 15 per cent to about 25 per cent by 2,000 A.D. even for modest development objectives to be realised. All this means massive investments in tapping conventional as well as renewable sources of energy.

A World Bank energy study estimates that 20 to 25 million hectares of forests would have to be planted during the next twenty years to meet likely fuelwood demand in developing countries without further damage to forests. The majority of poor rural families would remain dependent on fuelwood and organic wastes for the foreseeable future.

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*Chief News Editor, Press Trust of India

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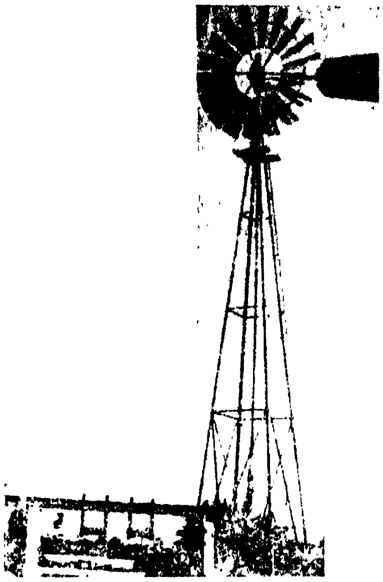
Global Challenge

Seth rama*



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Oil imports are already siphoning off 70 per cent of the export earnings of developing countries. These countries have been running massive current account deficits which are estimated to be of the order of 100 billion dollars in 1981. Their external debt stood at over 400 billion dollars by the end of 1980. External finance on acceptable terms for bridging balance of payments gap and fostering growth is a major constraint for development. Energy is the most serious of the challenges before them.

Nairobi Conference

With energy becoming the most pervasive problem for the world itself, the need for launching a new global campaign to develop alternative sources was recognised by the United Nations. Accordingly it was decided in 1978 to hold an international conference on New and Renewable Sources of Energy. This Conference—one of the largest for UN—has been held in Nairobi from August 10 to 21, 1981. The Conference, attended by more than four thousand delegates and experts in different fields of energy from over 150 nations, heard a keynote address by India's Prime Minister Shrimati Indira Gandhi.

Considerable preparatory work had gone for nearly three years for the Nairobi Conference. Groups of experts studied all technical problems relating to development and utilisation of new and renewable forms of energy of which fourteen have been identified—solar, geothermal, biomass and ocean thermal energy, wind, wave and tidal power hydropower, fuelwood, charcoal, oil shale, tar sands, peat and draught animals. Apart from technical reports, an intergovernmental preparatory committee held a series of meetings to draft a Programme of Action to promote concerned action in the context of the energy transition and the development and utilization of new and renewable sources of energy to help meet future overall energy requirements, especially those of developing countries.

The Secretary-General of the Conference, Mr. Enrique V. Iglesias had set the following tasks for the Conference : (1) To improve global awareness concerning the energy transition by initiating a world dialogue on the issues involved ; (2) To stimulate Governments to make national-level inventories of resources so that decisions regarding options on new and renewable sources of energy can be based on this knowledge ; (3) To emphasise the urgency of taking short term measures for the fuelwood and charcoal crisis ; and (4) To establish a framework of international cooperation for mobilisation of financial resources for developing countries and for support to energy research, technology transfer and investment.

World Energy Policy

Shrimati Indira Gandhi had given the call to the conference to adopt a world energy policy and devise an international mechanism which would mobilise resources for the development of energy sources, both conventional and new and renewable, in the developing countries. She deplored the reckless use of oil by highly developed countries and said there should be a more equitable sharing of the world's scarce resources like oil.

Even as the general debates went on with speeches by heads of delegations and representatives of international agencies, two committees examined the draft programme of action—one on an agreed set of concerted actions that would alter the global energy situation making new and renewable sources of energy increasingly available, and another on financing mechanism and institutional arrangements for monitoring implementation of the programme of action.

But after protracted negotiations, the Conference ended without agreement on the two key issues—financing and institutional mechanism for monitoring the programme of action. The developing countries lost the battle at any rate for the present, for an intergovernmental committee to monitor the implementation of the Nairobi Programme of Action and the creation of a fund to help developing countries exploit new sources of energy. The Conference agreed that the implementation of the programme required "additional and adequate" international financial resources, both public and private from all developed countries, international financial institutions and other global organisations. The World Bank and other agencies estimate that the funding requirement for new and renewable sources in all developing countries would have to be of the order of 50 billion dollars a year over the next twenty years.

As a compromise, the Conference decided that an Interim Committee should be set up for one year by the UN General Assembly at its 1981 session beginning September 15 and that a permanent mechanism should be settled by the General Assembly at its 1982 session. The Director-General for Development and Industrial Economic Cooperation has been designated as the Chief Coordinator for activities relating to new and renewable sources of energy.

The outcome of the Conference has been viewed with a sense of utter disappointment in many quarters and it has been dismissed as a "non-event". Despite the unhelpful stance of some of the developed nations, notably the USA, there is some hope that the Conference might prove a turning point in the world's search for sustainable energy sources for the future. The Conference's Secretary-General Mr. Iglesias noted, "We must wait for the long term impact".

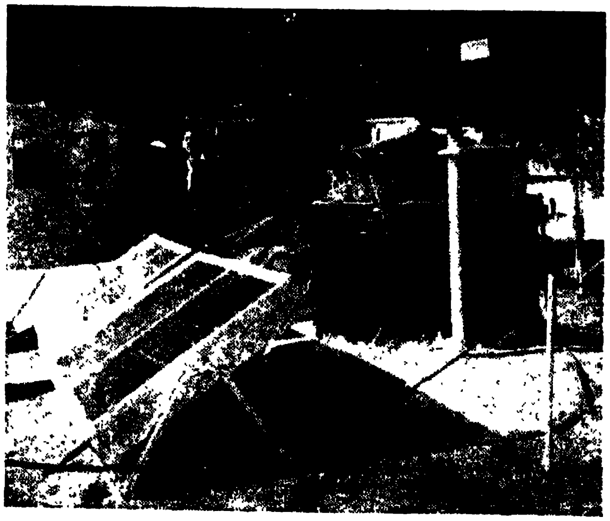
Although the Conference sidestepped the immediate problems for developing countries in the matter of securing oil supplies on a stable basis over the medium term through a cooperative arrangement involving both the oil-exporting and industrialised countries, it provided the occasion for nations to know more about the state of progress in technology in alterantive energy sources, especially solar, geothermal, wind, biomass and hydropower.

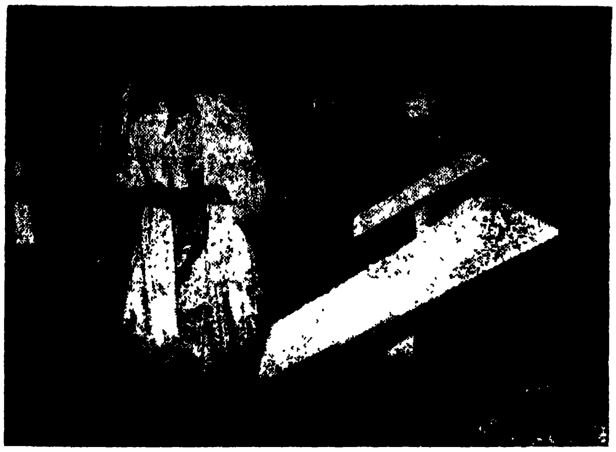
Programme of Action

In the Programme of Action as approved at the Nairobi Conference, six broad policy areas have been identified as requiring immediate attention of Governments and competent bodies. These are energy assessment and planning, information flows, research, development and demonstration, transfer, adaptation and application of mature technologies, education and training, and mobilisation of financial resources.

At the initiative of India and Kenya, the Conference also recommended the establishment and acceleration of programmes for large-scale reforestation with selected and tested species. This will be as part of an effort to increase five-fold the annual rate of fuelwood planting by 2,000 AD. This special action programme was devised in the context of the rural energy crisis highlighted by a "Fuelwood March" in Nairobi.

A dryer which works on biogas produced by solar energy





Mrs. Indira Gandhi going round the Indian Pavilion in the Energy Exhibition held as a part of Nairobi Conference on Energy

For urban and industrial energy, the Conference suggested to Governments to expand, where appropriate, utilisation of small and large-scale hydro resources, geo-thermal resources and associated transmission systems, and initiate and encourage the wider application of active and passive solar-heating and cooling systems for domestic, commercial and industrial purposes.

It also called for the exchange and sharing of information on new and renewable sources of energy to the fullest and freest possible extent between developed and developing countries and among developing countries themselves. Here is an area where India can share its knowledge and knowhow in solar energy and biogas techniques.

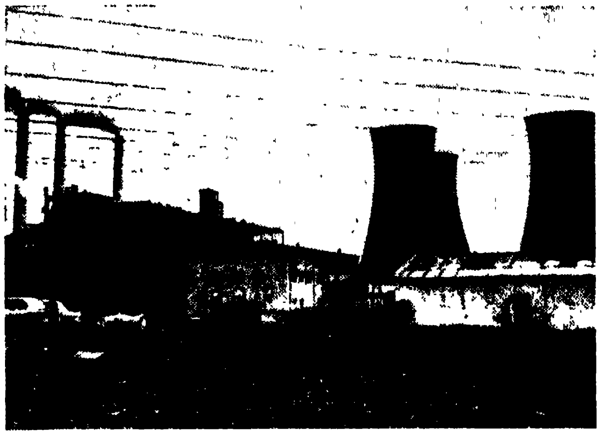
The World Bank and the United Nations Development Programme were invited to undertake a joint study, to be completed if practicable, by the end of 1981, for making as accurate an estimate as possible for the supporting actions and pre-investment requirements for new and renewable sources of energy in the developing countries in the eighties.

Some of the developed nations including Canada, Sweden Japan, Italy, Norway and the Netherlands expressed their willingness to finance new energy programmes in developing countries and indicated certain order of sums. Most rich countries would like to increase energy related finance in bilateral assistance programmes rather than put resources in an international pool.

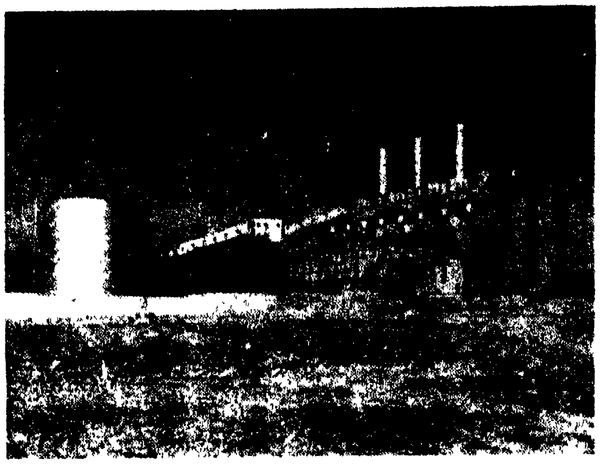
New Technologies on Display

Delegates returned with a mass of documentation on the developments and potentialities in various alternative sources of energy. The new technologies were also on display in an Exhibition held as part of the Nairobi Conference.

According to technical evaluation, new and renewable energy sources now provide fifteen per cent of the world's energy supply but they make up forty



Kothagudem thermal power plant



Oil Refinery

Table 1

Consumption of Commercial and Non-Commercial Forms of Energy 1953-54 to 1975-76

(In million tonnes of coal replacement)

Sources	1953-54	1960-61	1965-66	1970-71	1975-76
(a) Total Commercial Energy . . .	60.4	101.2	147.0	197.3	252.7
(b) Total Non-commercial Energy	125.9	145.5	159.6	172.2	194.6
Total	186.3	246.7	306.6	369.5	447.3

Note : The contribution from draught animals is not included.
Source : India's paper at UN Energy Conference at Nairobi (Aug. 1981).

Table 2

Forecast of the Energy Demand for the Period 1982-2000

Energy Source	Unit	1982-83		1987-88		1992-93		2000-2001	
		RLF	OLF	RLF	OLF	RLF	OLF	RLF	
*Coal	Million tonnes	96.8	96.8	131.5	128.0	186.6	170.4	308.0	266.0
*Oil	Million tonnes	25.4	25.2	33.4	30.4	44.7	37.0	74.2	54.8
@Electricity	TWh	128.3	128.3	191.2	173.6	282.0	241.0	471.0	395.6
@@Non commercial fuels	MTCR	204.1	..	202.8	..	195.8	..	163.5	..

*Includes only quantities used directly for energy uses, but does not include quantities used for power generation.
@Figures denote electricity used at the consumer end; the generation requirements will be higher.
@@Denotes demand in the household sector and does not include the consumption in the industry.
RLF : Reference Level Forecast.
OLF : Optimal Level Forecast.

per cent of the energy of developing countries. Nearly all the current use comes from fuelwood (more than three quarters of the total), hydropower and charcoal. Solar energy, hydropower and biomass are areas where a significant increase in production is anticipated by 2,000 AD when new and renewable sources should be contributing between 18 and 30 per cent of world energy production, according to the report of a Synthesis Group which analysed the technical panels' recommendations. These estimates may prove unrealistic but it is acknowledged that the alternative sources of energy would not have come into commercial exploitation of a sizable order until the end of the first quarter of the next century (2025 AD).

Energy Sources in India

India's National Paper to the Nairobi Conference reviewed the progress in the development of new and renewable energy sources in India and concluded that with technological and other constraints, India would need conventional energies in increasing measure for the foreseeable future even as efforts are made to hadness the renewable energies.

The main sources of commercial energy supplies are coal, oil, hydro and nuclear power. These account for about 60 per cent of the total energy consumption. The non-commercial forms of energy, like firewood, agricultural waste and animal dung, provide more than forty per cent of the total energy being consumed. In 1975-76, it is estimated, 133 million tonnes of firewood and 41 million tonnes of agricultural waste were used as fuel.

Table 3
World Commercial Energy Consumption, 1975-90
(Million barrels a day of oil equivalent)

	1975	1980	1985	1990	Average Annual Growth (percentage)		
					1950-74	1975-80	1980-90
World	122.1	137.8	166.0	201.5	5.0	2.5	3.9
Developing Countries	13.9	16.7	22.3	30 6	6.9	3.7	6.2
Oil Importing Developing Countries	10.4	12.4	16.8	22.8	6.9	3.6	6.3

Source : World Bank

Table 4
World Oil Production and Proven Oil Reserves on January 1, 1980
(Million barrels)

	Production during 1979	Gross Additions to Reserves in 1979	Total Reserves	Distribution of Reserves (Percentage)
Asia and Pacific	1,055	385	19,000	3.0
Western Europe	827	327	24,000	3.8
Middle East	7,732	—268	362,000	56.6
Africa	2,450	1,630	55,000	8.6
Western Hemisphere	5,616	19,616	90,000	14 0
Centrally Planned Economies	5,160	1,165	90,000	14.0
Total	22,840	22,855	640,000	100.00

Source : World Bank.

'CASE' Set Up

A commission for additional sources of energy (CASE) has already been set up to formulate policies and programmes for the development of new and renewable sources of energy. The NRSE strategy envisaged in the Sixth Five Year Plan (1980—85) aims at implementing, on a large scale, programmes in energy forestry and biogas, where technology has already been developed; carrying out field testing and demonstration of technologies which can become commercially viable in the next five to seven years; and intensifying research and development in other fields where results will take a longer time.

The priority areas include biogas production, fast growing trees, bioconversion technologies, solar thermal systems, windmills for pumping water and low power generation, energy storage systems and ocean energy technologies. Hopefully, it is considered possible to meet about 45 per cent of the total energy demand in 2,000AD through non-commercial sources and new and renewable sources including hydropower.

In the present energy scene, coal is the most abundant source of commercial energy and firewood the most important non-commercial fuel but among renewable energy sources in India, hydropower holds the biggest potential and is capable of meeting the large scale energy requirements of diffèrnt sectors of the economy. Other alternative sources for which appropriate technologies are being developed are mainly for decentralised applications especially in the agricultural and household sectors.

Most new and renewable sources of energy are site-specific. International experts reviewing the technological prospects note that for hydropower, tidal power and geothermal power, tested equipment and skills are readily available on the market. In the case of small wind-driven pumps, mini-hydropower dams, woodburning steam engines, oil-shale plants and biomass gasifiers, technologies which stagnated after development because of cheap oil or rural electrification could be improved or redesigned so that they can be locally manufactured at costs suitable for current needs. Technologies are also available for biomass conversion for producing ethanol, biogas and producer gas, wind turbines and solar photovoltaic cells. It is forecast that cost of solar cells can be reduced to one-tenth by 1990 AD.

"Fuel Crops"

A synthesis report to the UN Energy Conference at Nairobi reflecting the findings of experts says biomass conversion technologies have reached the point of economic viability. Ethanols, methanol and vegetable oils can substitute for refined petroleum such as gasoline and diesel oil. Provided there are no conflicts with food production, the potential of "fuel crops" is good even in the immediate future, according to the report.

It is in the area of fuelwood, the fourth largest contributor to world energy supply after petroleum, coal and natural gas that there is concern over future prospects unless large scale reforestation programmes are mounted by developing countries. Already, it is estimated about 100 million people in developing countries live in areas where there is acute shortage of firewood. Another one billion people meet their minimum requirements only by cutting in excess of sustainable supply. On current trends of population growth, fuelwood demands and depletion of forests, over 2.3 billion people will need to be provided with alternative fuels by 2,000 AD.

The Nairobi Conference has helped to arouse global awareness of the critical importance of effective management of the energy transition to the future of mankind and the framework for national action may be a useful guide to developing countries. But the set of global measures for financing and monitoring such a transition have so far failed to get the endorsement of the international community. ☐

Role of Medicine in the Prevention of Handicapping Conditions

Dr. P.B. Muraleedhara Menon*

IN THIS CENTURY, man's conscious resentment of his own sufferings has exploded into a great diversity of activities in the direction of human welfare. Medical and social sciences are pursuing the path of specialization out of this concern to eliminate human sufferings. Disability, irrespective of its source—whether from deformity, hearing loss, blindness or mental deficiency—is a major area of human sufferings and handicap to productivity. Medical and the allied health professions have, therefore, far long been striving to achieve the ideal goal of totally eliminating disabilities or of at least reducing their effects upon the individual and the family. In sharp contrast to the day in which successful birth was a matter of good-luck and early death a matter of course, medical services today strive to protect and promote health while scientific knowledge progressively unveils the causes and strategic characteristics of diseases and disabilities. The basic role of medical sciences in the prevention of handicapping conditions is to understand the genesis of disabilities and the natural history of the underlying diseases or pathology as well as to effectively take measures for eliminating these from the community and for reducing the impact of the problem on the patient himself.

Handicapping conditions can be broadly classified into five categories—Orthopaedic disabilities, visual handicaps, hearing-cum-speech defects, mentally handicapping conditions and Chronic systemic illness. The vast majority of these conditions are acquired since birth and only a small percentage are of congenital or hereditary nature. Amongst the acquired causes of handicap accident or trauma is playing an increasingly important role. The other major causes include infectious diseases, degenerative and connective tissue disease, as well as new growths. I shall now briefly touch upon some of the common diseases under the various heads which are of particular concern to us in India.

Orthopaedic Disabilities

A rough estimate is that this group constitutes about 30 per cent of the total disabled conditions. Even though accurate statistics about the incidence of various orthopaedic disabilities in our country are not available, it is estimated that those suffering from such disabilities range between 15 and 20 million. It is certain that anterior poliomyelitis still continues to be the major disease causing such disabilities. Amongst cases attending the Rehabilitation Centre in Trivandrum, 40 per cent have had poliomyelitis. Cerebral palsy, birth injuries, fractures and joint injuries, spinal cord injuries, amputations, arthritis, neuropathies, leprosy, and burns are the other important causes for Orthopaedic disabilities. Out of these I like to make a special mention about Leprosy as it is still associated with social stigma hard to overcome in the minds of the people.

Blindness : It is estimated that there are about 4.5 million blind in India and this is about 45 per cent of the World's total. It is staggering to know these figures and further to know that about 60--70 per cent of the blindness in this country has been caused by Trachoma, an infectious disease and a preventable cause for blindness. Other disease include syphilis, opthalmia neonatorum, leprosy, small pox, meningitis, toxic neuritis, and trauma.

Deafness. : It is estimated that there are over 2 million deaf-mutes in India. The main preventable causes for deafness include middle ear infection, maternal rubella, congenital syphilis, whooping cough, diptheria, typhoid, and cumulative toxic effects of certain drugs notably Streptomycin. Congenital deafness is a widely prevalent problem and the most important cause for deficient communication. This condition is also a noted illustration of how early rehabilitation could minimise handicaps.

***Professor, Physical Medicine & Rehabilitation, Medical College, Trivandrum**

Mental Handicap

On an average there are about 3 million mentally handicapped in our country. Even though primary mental deficiency is common, secondary or exogenous causes seem to be more operative in India. Infections notably virus encephalitis, whooping cough, measles, small-pox and maternal rubella, contribute to probably 50 per cent of the total toll. Birth injury of the brain and asphyxia of the new born, as well as toxic causes in the mother like eclampsia, and blood incompatibility are the other important preventable causes of mental deficiency. Severe malnutribition in early childhood and unrecognised thyroid deficiency should also be remembered in this context.

Chronic Systemic Illnesses

The preventable causes which come under this head include tuberculosis, syphilis, rheumatic fever, deficiency diseases, and certain occupational diseases.

Today it is the accepted goal of medical science to prevent illness and disabilities, and also to take every possible step to promote positive health. In spite of all the advances of medical science, sadly enough, we are badly in need of more hospitals and more rehabilitation centres clearly illustrating that we are far too away from the ideal. This is basically because of the wide gaps that still exist in the scientific knowledge about diseases. For example, in the case of many communicable diseases immunity cannot be provided, nor are there specific therapies. The millennium of knowledge about elimination of hazards of pregnancy, child-birth, infancy and childhood has not been reached. However, the marvel of modern medical science is that so much is now known in comparison with what was known even half a century ago. But of equal marvel is the systematic manner in which what is known about the characteristics of disabling diseases and hazards has been put together to give form and content to a strategic community-wide attack upon them with a view to prevent the preventable problems, and for those already established to diminish the resulting functional handicaps. These functions can best be categorised under three heads :—

(a) community-wide disease prevention and control ;

(b) detection, diagnosis and treatment ; and

(c) application of specialised measures early in the course of treatment, whenever necessary, for prevention secondary disabilities.

Closely related to these functions, and supporting them all in a general way, are three important undertakings : environmental sanitation, health education of the public, and educating medical and allied health personnel on practice of preventive medicine and preventive rehabilitation.

Community-wide disease prevention and control

The role of acute infectious diseases, which might sometimes even rise to epidemic proportions, in the causation of handicapping conditions has already been stressed. One has only to think in terms of the large number of persons left criputed by poliomyelities, or turned completely blind by trachoma or an attack of small pox, or have become mentally deficient following viral encephalitis, in order to appreciate the magnitude of the problem. There is no question that in a wide disease-prevention programme, control of such highly infectious disease has priority over less acute health hazards. The value of vaccination against small-pox and immunisation against poliomyelitis diptheria, tetanus and whooping-cough has already been established and an increasing number of children are being protected every year.

Organised medicine should also contribute its share towards accident prevention whether it is in the home or on the road or in factories Medical ideas about prevention of serious damage during accidents are highly valued by the automobile industry. Industrial medicine is a speciality by itself on its own right. This concerns itself with the task of providing safety and health promotion for the industrial worker.

Detection, diagnosis and treatment

It is the duty of every physician to strive for correct early diagnosis of his patient's disease and institute appropriate treatment. In fact from the point of view of the sick persons this constitutes the whole purpose of medicine. It is important to remember that institution of the correct treatment at the earliest possible time is the surest way to assure maximum restoration of the patient's health and to minimize residual handicaps, if any.

Community based schemes are essential to achieve early detection of handicapping states. The best known example is perhaps the school health service. Here early detection can be successfully combined with skilled diagnostic procedures and treatment services. Mass radiological screening to detect tuberculosis and the working of ante-natal clinics for expectant mothers have contributed substantially to detect diseases early and to effectively prevent handicapping status. Improved obstetric care should be considered as a corner-stone of efforts to prevent physical and mental handicaps ; it has been responsible for the reduction of birth injuries and the incidence of congenital syphilis and opthalmia neonatorum.

Application of specialised measures

This is the era of specialisation. Because of rapid advances in medical science specialists and specialised diagnostic and treatment procedures have become part and parcel of present-day medical practice. This has made it possible to reduce or even eliminate handicaps hitherto considered hopeless. The new vista opened by open heart-surgery is a remarkable example. While such advances afford successful treatment to a small number of severely disabled, the skill and the expense they call for have induced a new surge in the medical world towards shifting the emphasis to early rehabilitation A medical rehabilitation service is being increasingly considered as an essential department of a hospital. Its usefulness is not just limited to providing physial medicine treatment for paralytic or painful disorders and to reable the disabled through adaptive gadgets or prosthetic appliances ; it is also a highly useful service to prevent severely handicapping sequelae of long term diseases. The role of a small team consisting of a doctor trained in rehabilitation and a rehabilitation nurse to initiate and carry out measures to prevent secondary disabilities

(Continued on 36)

INCOME-TAX PAYERS

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- ☐ **COMPLETION OF ASSESSMENT**
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Please address your petitions direct to :

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Chairman,
Central Board of Direct Taxes
Room No. 148, North Block
Central Secretariat,
New Delhi-110001.

Note . To facilitate action on your petition please quote your Permanent Account Number alongwith your name and address, assessment year and the circle ward assessed

Directorate of Inspection
(Research, Statistics & Public Relations)
Income Tax Department, New Delhi-110001.

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Solid Gas: Research and Perspective

GAS hydrates, or solid gas, are a new large source of heat energy and chemical raw material on our planet. Soviet scientists have discovered the hitherto unknown property of the natural gases to stay in solid state and form deposits under a certain combination of temperature and pressure.

The hydrocarbon reserves in the state of gas hydrates exceed several times the summary reserves of coal, oil and regular natural gas on our planet.

Visually gas hydrates resemble non-transparent ice. They form in the earth's core, rather in its upper sedimentary mantle, when ethane, methane, propane and other gases combine with water under pressure of 0 to 250 atmospheres and under sub-zero or slightly above-zero temperatures (up to 20 degrees Centigrade). One volume of the hydrate may contain up to 200 volumes of gas, although under normal conditions it is difficult to dissolve more than four cubic metres of natural gas in a cubic metre of water.

The calculations that have been performed by the scientists during the recent years show that favourable conditions for the formation of solid gas in the earth's core exist in 27 per cent of land, chiefly in the permafrost and glacier areas, as well as in 9|10 of the bed of the world Ocean. The prospective land territories for the industrial accumulation of the gas hydrates are : the whole north of the USSR (about half the country's territory), 63 per cent of the Caada, 75 per cent of Alaska, as well as Greenland and the Antarctic continent.

The most difficult part in the practical realisation of the huge perspectives for the usage of solid gas is the exploitation of the hydrate deposit. The scientists have come to the main agreements—gas should be converted into its free state at site in the seam. This can be achieved by reducing the seam pressure, by raising the temperature or through the introduction into the seam of anti-hydrate liquids—salt or spirit solutions.

A group of Siberian geologists have established, using the geophysical method, nearly 30 areas where gas hydrate deposits could exist, but actually only one of them is being exploited—the world's first Messoyakh deposit in the north of the Krasnoyarsk Territory. For over five years already it has been supplying gas to Norsilsk.

During the next 15 to 20 years we may speak about exploiting gas hydrate deposits on an industrial scale.
(*Soviet Features*)

Correction

In Yojana issue dated 16—30 September 1981, one photo block was wrongly set up on page 9. The error is regretted.

I AM MINTY
A SQUIRREL TINY

Thrifty, nifty, sprightly
I helped Prince Rama —
cross the sea.
Got a pat on the back —
for all to see
Others eminent —
still bless me
Even at Mahabank —
—Yes, that's me.

Once a denizen of parks and trees
I live on branches that grow with me.
Hundreds of Mahabank branches now
and more to be.

BANK OF MAHARASHTRA

(A Govt. of India Undertaking)

H.O. — 'Lokmangal'
1501, Shivajinagar,
Pune-411005.

Twenty-five Years of National Atlas

Modification of guide maps with the help of aerial photographs

S. K. Ray*

THE National Atlas and Thematic Mapping Organisation of the Union Department of Science and Technology completed twenty-five years of its existence on August 18, 1981. Based in Calcutta the organisation, devoted as it is to research and compilation work on thematic cartography and applied geography, has been doing pioneering work in filling the gap in geographical and statistical data vital for the planned growth of the national economy.

From a humble beginning in 1956 the National Atlas Organisation as it was known since its inception grew in strength in course of time and undertook projects of great national importance. In pursuance of the recommendations of a Review Committee appointed by the Government the name of the organisation was modified as National Atlas and Thematic Mapping Organisation with effect from August 9, 1978 in keeping with its much expanded charter of functions which included preparation of thematic maps based on research studies on environmental aspects and their impact on social and economic development apart from compilation of the National Atlas Maps in regional languages.

Achievements

The Organisation can look back on its record of achievements with legitimate pride. The first National Atlas, composed of 26 multi-coloured maps portraying in detail the physical and socio-cultural structure of the Indian nation was published in Hindi in 1957. Being the first of its kind in any developing country the publication was acclaimed the world over as a unique work. The Organisation then embarked on an ambitious project of producing the National Atlas in English covering all aspects of the land, people and economy of the country, a project which is now nearing completion. Of a total of 300 plates 250 plates have already been printed off and the rest are in the process of being printed. A great storehouse of valuable information the National Atlas contains maps prepared on the basis of the latest available authentic data and provides an anlytical study on the general and environmental, population, economic, social and cultural features of the country. The Atlas which constitutes the most reliable guide to planners, administrators, academicians, researchers, tourists and others is being issued in volumes and already three volumes are on sale.

Single Theme Projects

Apart from the multi-theme exercise like the preparation of the National Atlas the organisation has also undertaken single theme projects. The idea is to make a more elaborate mapping on particular subjects. And four such projects are already completed—the Irrigation Atlas, the Tourist Atlas, Atlas of Forest Resources and the Atlas of Agricultural Resources. The project on the Irrigation Atlas was taken in hand at the request of the Irrigation Commission with a view to depicting in detail the position of irrigation facilities available in the country and a comprehensive atlas on the subject in full colours was published in 1972. The Tourist Atlas brought out in 1974 has already become very popular with domestic and international tourists who were previously severely handicapped for lack of readily available tourist information. The Atlas incorporates the latest information on transport linkages and touirst facilities, all depicted in multi-coloured plates. The next in the series was the Atlas of Forest Resources published in 1976 which is a repository of information about the forests in our country—distribution of the forest areas, their classification, economic returns out of them and the potentialities. The Forest Department of the Government of India and the Forest Research Institute at Dehra Dun had extended active cooperation by providing the data that was available with them. The fourth atlas, the Atlas of Agricultural Resources, was released for sale on 18th August last, the day that marked the silver jubilee of the organisation. For a predominantly agricultural economy detailed mapping about different aspects of agriculture is an imperative necessity. The Atlas of Agricultural Resources deals with such topics as land-use, land capability, soil and crop regions ad provides a very elaborate picture of the agricultural resources and their potentialities. Another atlas which is now under print is the Atlas of Water Resources which will contain detailed information about the surface and ground water resources in the country.

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Enlargement/Reduction to different sizes can be had from Cartographic Camera

The Integrated Projects

Of the recent ventures mention may be made of three integrated projects which have been in operation in a common group of selected districts. These are land-use survey and mapping, geomorphological survey and mapping and urban studies. The land-use mapping programme involves a detailed survey of selected areas and publishing results thereof in the form of land-use maps, one for each Development Block, supported by monographs containing statistical and other supplementary information. As basic knowledge of the land form is complementary to that of the land-use pattern the second project envisages geomorphological survey and publication of the results in the form of maps, again one for each Development Block, along with supplementary monogarphs. The urban studies are aimed at surveying the actions and interactions between the urban centres and their surrounding regions which provide the clue to the present position of the urban centres, their possible growth patterns and their potential for future development, a study which has so long been neglected. The usefulness of such a study in planning urban development cannot be over-emphasized.

Drought and Inland Resources

Two important projects have been taken in hand more recently. These are the Drought Atlas and the Atlas of Land Resources. The Central Water Commission has set up a special wing to study the problems of drought and requested the National Atlas and Thematic Mapping Organisation to take up the preparation of a Drought Atlas in collaboartion with them. The importance of this project is evident from the fact that nearly one-third of the country frequently suffers from drought. It is high time the causes of recurrent drought were studied to evolve remedial measures. As for land resources, adequate cartographic documentation of information about such resources is lacking. The economy of the country being mainly based on land, an Atlas of Land Resources will no doubt help in the planned development. In this Atlas such topics as soil types, land form, lithology, land-use and land capability will be depicted in detail highlighting the varying conditions obtaining in different regions of the country. ☐

MORE BANKS FOR WEAKER SECTIONS

SECTORS such as agriculture, small industry, small road transport operators, self-employed people, in which smaller borrowers predominate, have been given a priority status in nationalised banks' lending programmes. The outstanding bank credit to priority sector has increased from Rs. 505 crores in 1969 to over Rs. 8000 crores now. Measures such as simplification of application forms, making them available in reregional languages for agricultural credit, relaxation of margin and security requirements, concessional treatment to smaller borrowers in regard to interest, have helped bring back credit within the reach of the small borrowers. Formulation of District Credit Plans, setting up of Regional Rural Banks, Special branches such as Agricultural Development Banks, Gram Vikas Kendras, multi-service agencies, etc., and active participation of the banks in Small Farmers Development Agency, Drought Prone Area Programme and other programmes have helped impart a certain momentum to the banks' efforts to provide credit to smaller borrowers.

There is no denying the fact that significant as our achievements have been, these fall short of our requirements. Government and Reserve Bank of India have, therefore, set higher goals before the banks during the Sixth Plan period. Banks have been asked to raise the share of priority sectors in their aggregate credit to the level of 40 per cent by March 1985 (during 6th Plan). Agriculture and allied activties will account for 16 per cent of the total credit. Recognising the need for sharper focus on meeting the credit requirements of the weaker sections, banks have been asked to ensure that at least 50 per cent of their direct finance to agriculture would be to small and marginal farmers and smaller borrowers in the activities allied to Agriculture. In the small scale industry sector also, the banks will endeavour to double the share of small industry credit now flowing to artisans, craftsmen and cottage and village and other weaker sections and consumption loans have not been included within the 'priority sectors'. Banks have been asked to attain a credit-deposit ratio of 60 per cent in their rural and semi-urban branches. Banks have also been asked to actively participate in the Integrated Rural Development Programme and to integrate the IRDP credit commitments in their District Credit Plans. The programme of setting up of Regional Rural Banks is being accelerated.

The Government have also decided to set up a National Bank for Agriculture and Rural Development for promoting integrated rural development for providing credit to agriculture and other economic activities in rural areas and for coordination and monitoring of all agricultural and rural lending activities.

(From Deputy Minister of Finance, Shri Maganbhai Barot's statement in the Lok Sabha).

Mexico's Economic Development

Navin Chandra Joshi*

HISTORIANS will probably record that in the last 30 years, Maxico was travelling on a comparatively clear and open stretch in her upward course. While global conditions have not been so favourable for the country's economic growth, political machinery within the country had matured to a point at which it could provide the necessary strength, services and security. The nation does take pride in evolving its own ethos for economic development.

With a population of about 63 million and per capita income of US $ 1100, the country lies in the southern extremity of North America. It is bounded in the north by the U.S.A., in the west and south west by the Pacific, in the south by Guatemala and Belize and in the east by the Gulf of Mexico. The total area of the country is 1,967,183 sq. km. excluding inland waters and uninhabited islands. Mexico is a federal republic, devided into one federal district and 31 states each of which has the right to manage its own local affairs. It has a presidential form of government and the official language is Spanish. Its monetary unit is the Peso (22.60 pesos are equal to US $ 1). Mexican agriculture is dependent on rains and hence irrigation system is crucial. The basic food crop is maize. Timber lands cover about 22 per cent of the Mexican terditory. Fishing is a flourishing industry as Mexico has 9,903 km. of coastline.

About 40 per cent of the population is actively engaged in agriculture contributing 9.7 per cent to gross domestic product. Industry and construction work contribute 30 per cent to GDP and mining 4.2 per cent. It is important to note that public investment in Mexico is only 5 per cent of the G.N.P. in comparison with 9 per cent from domestic private investment. The Bank of Mexico is the main agency through which the Government operates its monetary policy.

Growth Through Mixed Economy

By 1940 the machinery of Mexican government was beginning to develop the capabilities for a more active role in economic life. After the World War II, Mexico's economy continued to expand both through private and public sectors. The growth rate has been fairly impressive, both in total output and on a per capita basis. The country has grown faster than any of the big three of South America though not so fast as truly spectacular performers like post-war Japan and Germany.

It has a well-developed public sector consisting of its government agencies and its government controlled enterprises, which have acquired a sense of continuity and of effective performance. The country has also a firmly established indigenous private sector engaged not only in the traditional agricultural activities but also in the modern areas of industry, banking and commerce. Mexico has a mixed economy with full facilities given to the private sector. While Government has the dominant role in the development process, the sectors reserved for the State are petroleum, hydrocarbon, electricity, nuclear energy, communications, etc. The private enterprise has a principal role in the field of manufacturing, banking and finance, commerce, entertainment and the servicing industries, including construction.

Measured in optput terms, Mexico has an economy of private enterprise. Over 9|10ths of its production comes from the private sector. Since agriculture is the dominant activity of the pivate sector, it engages 4 to 5 times as much manpower as manufacturing. Indeed, agriculture accounts for more than half of Mexico's total labour force. About half of land under cultivation is held under individual title and the other half is held under collective title. Consumer tastes and technology of the United States are evident throughout the Mexican economy. Foreign ownership and control is significant in the manufacturing sector. U.S. controlled manufacturing companies account for about 1|5th of total Mexican production in the manufacturing sector.

Planning Process

Most of what is termed 'planning' in Mexico is far from the normally accepted concept of economic planning. Only since 1692 has planning been cosidered private as well as public investment and attempted a comprehensive assessment of the present and prospective availability of resources and their alternative uses. In 1930 a National Planning Commission was established but no national plan emerged. In 1948 a National Investment Commission was set up for selecting and coordinating a programme of federal public investment.

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In the wake of 1959—61 period of relatively slow growth, balance of payments problems, etc., a Plan of Immediate Action was prepared in 1962 with an overall projected growth rate of 6.5 per cent per year. It is interesting to note that the planning process is not in the hands of economists or economic technicians but in the hands of those who have high positions in government. The economic decisions have therefore political overtones. Lack of knowledge of planned public investment has not, however, been a handicap and if one believes in the significance of rational economic calculations one can hardly believe that it is better to base decisions on less information than on more. That has been the case in Mexican planning.

The current National Development Plan (1979—1990) aims at a growth rate of 8.5 per cent in 1981 and 10 per cent thereafter. Industrial production is expected to grow by 10 per cent upto 1982 and by 11.0 per cent during 1982—1990 peirod. Priority has been accorded to the development of basic consumer goods and other industries capable of competing in the world market by full use of Mexico's natural resources and strengthening the industrial base. The priority industries listed in the Plan are : Agro-based and food processing, mining and metallurgical, consumer goods, basic and capital goods, and construction. An extraordinary feature of Mexican industrial development is that there is too much excess plant capacity reflecting imperfection of competition in the domestic market. Entry of more firms into an industry than the optimum plant level is the other cause for this. Another equally significant feature is the policy of import substitution for protecting manufacturing industry. It has also led to self-sufficiency in foodgrains.

Foreign Capital

Mexico has been able to get foreign capital without foreign aid. Loans from the World Bank, private direct investment and public sector borrowing, short and long-term, have been he main sources. Today foreign investment accounts for US $ 5 to 6 billion representing about 5 per cent of the total investment. U. S. A. is the premier investor with a share of 70 to 80 per cent, followed by Germany, U. K., Canada, France, Sweden and Spain. Of late, Japan has also been taking interest in investment in Mexico.

The country is also constrained by the presence of multinationals and is trying to reduce its dependence on them. Therefore, a new framework governing foreign investment has been evolved. Its important features are :—

1. Foreign shareholding will be limited to less than 49 per cent.

2. Management and administration of the enterprise must be in the Mexican hands.

3. Only Mexican citizens may purchase real estate within 100 kilometres of national border or 50 kilometres of coast.

4 Finished articles must contain a minimum of 30 per cent of national material. In certain sectors, more particularly in northern and southern region, the expectation is over 40 to 50 per cent.

5. Participation of foreign capital in mining, production of secondary petro-chemical products and the manufacture of parts for motor vehicle is limited to 30 to 40 per cent.

6. Foreign participation in industries such as petroleum, hydro-carbon basic petro-chemical industry, nucelar energy, transport and communications, and forestry is limited to contractual obligations.

7. Capital participation involving less than 49 per cent is welcomed without any restriction in all activities, except those kept reserved for the State.

8. The National Commission for Foreign Investment an inter-ministerial consultant body, is authorised to process the foreign investment proposals, grant permission and certain incentives, etc. A number of free trade zones have been set up where greater facilities are available for foreign investment.

Mexico has, of late, allowed setting up of inbound industries, mainly for export, where foreign capital can be even upto 100 per cent. Certain items like raw and auxiliary materials, machinery and equipment, spare parts, tools, packing material and technology can be imported duty-free. Any product, except those reserved for the Government, can be manufactured in in-bond industrial units. Some of the products of in-bond industries could be sold in the Mexican market as well, provided there is no local production and the product provides substitute for imports. Today the areas opened to foreign investors, both under bond and otherwise, are manufacture of metal goods, consumer goods, agricultural equipment, construction material and capital goods. India can collaborate in a number of these areas, particularly the power sector, consultancy services and construction, improvement of railway system, rice milling plants, agro-industries, machine tools, etc.

Petroleum—the Backbone

Mexico is the second largest producer of crude in Latin America after Venezuela, and the sixth in the world in terms of proven reserves. It is equally rich in natural gas reserves. The proven reserves of oil are estimated at over 50 billion cubic ft. President Portillo, immediately after taking over the office in 1976, embarked upon a massive petroleum development programme, costing around US $ 18 billion for the period 1976-82.

It would not be an exaggeration to say that the record oil prduction of the order of 3 million barrels a day in 1980, the unprecedented rate of investment in the economy and the unsatiable demand for a variety of goods and services, have now made the Mexican economy a centre of world-wide attraction. In fact, the Government is determined to use its oil leverage to secure attractive technology and investment from foreigners at favourable terms. In the wake of oil boom, Mexico's foreign reserves have been mounting and they were to the tune of over US $ 10 billion in 1980. Apart from making full use of these earnings in its indigenous development, Mexico can seek investment outlets abroad. Mexican capital can participate in Indian companies under the new Indian Investment Policy for Oil Exporting Developing (OED) Countries. There could also be joint ventures with India.

Apart from petroleum, Mexico has large untapped coal, uranium and other valuable minerals, including gold, silver, copper, lead ad zinc. It has a large hydro-electric potential. It is the world's leading producer of silver, fluoride, graphite, sulphur, mercury, etc. It has ample marine reserves, rich forest wealth and equally rich agricultural products. It is the third largest producer of coffee after Brazil and Colombia. Its principal industries are automobile assembly plants, steel manufacture, textile industry food processing and brewery.

Foreign Trade

Mexico is emerging as a leading trading nation in Latin America. This is evident from the growth of its exports and imports. For example, its exports rose from $ 1.3 billion in 1970 to $ 8.6 billion in 1979 and its imports too increased from $ 2.3 billion to about $ 12 billion during, this period. Tourism has been the largest single source of dollar income. Now it is envisaged that Mexican merchandise imports will go up to US $ 20 billion by 1985 and $ 24 billion by 1990. Its exports would also rise significantly as a result of the rising price of petroleum and natural gas.

Presently, the U. S. A. is the major trading partner, accounting for 68 per cent of its exports and 62 per cent of its imports, followed by the E. E. C. Canada and Brazil. Now Japan's share is also increasing. Apart from petroleum, the exports from Mexico largely consist of coffee, cotton, newsprint, sulphur, urea and several other products. Its imports too are getting diversified. In addition to several consumer items and certain food products, Mexico is the net importer of producer goods, more particularly raw materials, intermediate and capital goods. Today 85 per cent of its requirements of machinery and equipment are met through imports.

Trade with India

At present India's share in Mexican trade is quite negligible—hardly $ 22 million. India's exports to Mexico are around $ 5 million while import are $ 18 million. India exports jute products, insecticides, shellac, natural rubber and dyeing and colouring material. She imports phosphoric acid, essence of lemon oil, etc. Petroleum which was imported from Mexico has been found unsuitable for Indian refineries.

The trade between the two countries has been constrained by a number of factors such as, long distance, information gap and above all, our inability to match credit terms, delivery schedules, service facility and the like. Notwithstanding these limitations, prospects for promoting trade are promising. Mexico can supply many items to India like urea and fertilisers, newsprint, pulp and paper, sulphur, phosphoric acid etc. Likewise Mexico offers good scope for our exports of capital goods, machinery, forgings and castings, jute mill and textile mill accessories, power equipment, agricultural equipment pharmaceutical products, electronic items, etc. Since Mexico does not manufacture textile machinery, there is considerable scope for the introduction of Indian textile machinery in that country. Further, since Mexico is trying to improve its railway system by seeking foreign assistance and cooperation, India, with a large network and technical competence, has an edge over other countries in meeting the requirements. India can also supply iron ore for Mexico's steel plants.

Conclusion

Mexican economic policy has, on the whole, been pragmatic rather than doctrinaire. Its approach to agricultural policies and foreign investment projects demonstrates this. Even as there has been sustained economic growth, it has not yet brought Western levels of prosperity on the most distant horizon for the majority of Mexicans. The productivity of much of the labour force is very low. The distribution of income is extremely unequal. The major task for future is to provide productive employment for millions of the existing labour force and to absorb those reaching working age. Industrial growth must bear the brunt of this task. This will require a change in its pattern of development.

There is no doubt that rapid economic growth has been accompanied by a high level of economic stability. The country has managed to secure most of the advantages that foreign capital can bring without compromising her strong national desire to control her own economic destiny. Proximity of the U. S. has brought tourism and supplied markets providing good export prospects.

Of all the countries in Latin America, Mexico has shown considerable interest in India and its development. If trade between the two countries has to increase it is necessary to remove the shipping difficulty which acts as a major barrier. Either a joint shipping service be started or a suitable transhipment arrangement be evolved. Another general difficulty that India faces in Latin American countries is the communication gap. There is lack of awareness about India's progress and economic potentials and vice-versa. It is with a view to bridging the communication gap and strengthening business contacts that recently a delegation of Federation of Indian Chambers of Commerce and Industry visited some of these countries, including Mexico and it met with an encouraging response from these countries.

Another aspect of economic cooperation between the two countries is that Indian traders and investors will have to encounter tough competition from the multinational companies which are well established in Mexico and other Latin American coun'ries. But since Indian products are becoming acceptable in the far-off and the sophisticated markets of Europe and North America, there is no reason why we cannot make a major breakthrough in the Mexican market. Surely, there is need to provide financial support to enable Indian exporters to offer matching credit facilities to win business contacts. For India, Mexico offers good scope for joint ventures in power sector, improvement in its railway sustem, pharmaceutical, cement and sugar industries. Likewise, Mexican cooperation in such areas as swamp water drilling, manufacture of petro-chemical products, sponge iron and newsprint from bagasse would be of great interest to India. There is a good deal of similarities between India and Mexico. While the latter is one of the fastest developing nations in Latin America, it continues to face the problem of unemployment, material shortage and transport bottlenecks—problems which are faced by India also. A degree of solidarity can exist between the two developing countries as their economies provide an equally fascinating picture for substantial cooperation. ☐

Better Days Ahead for Gujarat Tribals

J. M. L. Mathur

The Chhota Udaipur area of Gujarat has witnessed gradual transformation. Forests have given way to new buildings, schools, training institutes, government offices and residential quarters. Half-clad tribals, who earlier solely depended on forest produce and lived almost in isolation, now queue up in the market for purchasing new agricultural inputs, wear shirts of mill cloth, use toilet soaps, wait patiently for medical check-up and send their children to schools.

Co-operatives Show the Way

Now the tribal farmers get new varieties of seeds, fertilizer and pesticide from a co-operative society. Agricultural inputs are available at 50 per cent subsidised rates. One farmer, Ramabhai of Rathwa tribal community got these agiculture inputs at the subsidised price of Rs. 102 from Paniyawant Co-operative Society. He hopes to grow a four quintal crop of hybrid cotton from his half acre plot and save Rs. 1500 after meeting all the expenses. Similar enthusiasm was witnessed at the office of Garudeshwar Co-operative Society at Jharia village. Kits of agricultural inputs for maize and groundnuts were sold at the subsidised price of Rs. 75 and Rs. 101 respectively. The society sold 150 kits in one week and several farmers were still waiting in the queue. Bank of Baroda, the lead bank of the area has extended them loan facility. In Gujrat more than 1,20,000 kits have been sold this year.

Eight-fold Increase

In Gujarat irrigation facilities are very poor. But wherever some help has been given, tribals have improved their lot. At Gundawada village a tribal farmer Bechla Kalji has increased, the yield 8-fold through Lift Irrigation Cooperative Society. Earlier, without irrigation he reaped only 2 quintals of ragi, a course grain of the area. He takes now 16 quintals. Although barefoot, Bechla now wears new cotton shirt and sends his children to schools. So far he has invested Rs. 1500 on the construction of his house.

The tribal farmers though extremely poor are not averse to new ideas and new techniques. Chhagan Bhai in Runawat village, is now raising a banana crop on 1 4 acre plot. Earlier he raised only maize and bajra but with the help of Tribal Development Project Authorities he has grown 400 banana plants on his farm. Each plant will give him banana worth Rs. 10. Thus he hopes to earn Rs. 4,000 from one crop only.

In Surat and Valsad districts of Gujarat, Adivasi farmers are being encouraged to go in for paddy cultivation. Under a scheme, one-acre holding of a tribal farmer is to be converted into Kyarior paddy. The Adivasi cultivator grows paddy under technical guidance. He is given Rs. 500 or 50 per cent of total expenditure whichever is less as subsidy. In Vansda Project area alone, 660 farmers have taken advantage of the scheme. In 1981-82 this scheme will benefit 7,500 families in all.

Dangs Also Wake Up

In the Dangs district the tribals have given up shifting cultivation. A scheme for free distribution of seeds is popular but extremely poor people are unable to purchase improved agricultural implements even at subsidised rates. Forest labour cooperatives, have proved to be of considerable help to tribals as they provide fair wages as well as bonus. Potato has been introduced in about 35 villages on high altitude. Poultry keeping is coming up as a subsidiary occupation.

Among Dangs, organisation of milk cooperatives started in 1977-78. Now the district has 19 Milk Producers cooperative societies. The societies supplied buffaloes at subsidised rate recovered the cost of buffaloes in instalments from the price of milk sold. Milk is purchased at the rate of Rs. 2.40 per litre.

Dangs have made good progress in the field of education also. In 1951-52 there were only 94 primary schools with 3,300 students and now there are 348 primary schools with 24,000 students. As regards secondary schools against one in 1961-62, now 10 secondary schools give education to 1.300 students

New Life for Kotwalias

In Waghai, the forest department has constructed about 100 huts for them. The department supplies bamboos at their doorsteps and also collects finished products. Jamal, a tribal four years back was living under the open sky. Now days are better for him and and for other families too. He and his wife together, prepare about eight baskets a day and each basket fetches them Re. 1. Marketing is no problem as forest department people come to collect and make payment. At Dadipada village some Kotwalia families are now members of an Industrial Service Cooperative Society. In Vansad, a training centre trains some 30 Kolgha tribal girls in match-box making. They are paid stipend at the rate of Rs. 125 per month.

Foodgrain Banks

Gujarat Government took another step, which saved tribals from exploitation. These Banks supply foodgrains to tribal farmers in their time of need. The tribals are supposed to return the same after harvest along with 10 per cent additional quantity.

Gujarat has 154 Ashramshala residential schools to educate 16,000 inmates. These schools are extremely helpful in tribal areas where poor parents cannot afford to send their children to schools. The school at Pimpri in Dang district has 60 boys and 60 girls, all belonging to poor tribal families. In this Ashramashala, classrooms are converted into dormitories for sleeping purposes at the night. Children also help in kitchen. They get Rs. 75 per month as stipend and free text books and uniforms.

Under the Integrated Child Develpment Scheme in Chhota Udaipur area 63 Anganwadis are working covering all 57 villages of the Taluka. They provide free nutritional food, informal education and health check-up to children below 6 years of age

New Skills

At Regional Training Centre in Chhota Udaipur training is provided in 10 trades including watch repairing, tailoring, carpentary, oil engine repairing weaving etc. The centre has so far trained 700 tribal youths since its inception in 1976-77. More than 150 youths have set up their own trades or have been absorbed in other employment. At Vansda, training facilities are available in printing and composing, radio repairing, diamond-cutting etc. One of the Tribal boys after receiving such training has obtained loan from a bank and has established his radio repairing shop.

The Centre for Entrepreunership Development at Mandvi is also doing a commendable job. Amritbhai of Gamit tribes who has studied upto Class V, has learnt sweater weaving on a modern machine in 6 months. Now he weaves five sweaters in four days. Each sweater is sold for about Rs. 11. He has obtained loan from bank and now owns a sweater weaving machine costing about Rs. 3000. Similarly days have changed for Samrath of Chowdary community who has been trained for bangle making. He also has his own manufacturing equipment worth Rs. 3,200 and now earns about Rs. 11 per day. For him marketing is no problem as bangles in Adivasi villages are sold like hot cakes. Similar training is being provided for preparing nylon ropes, plastic goods etc.

In Gujarat, tribals belonging to about 22 different tribes are at different stages of development. But they share the common problems of poverty. During 1980-81 more than 1,66,000 families have been helped under various programmes of the State Social Welfare and Tribal Development Corporation. Among them more than 74,700 beneficiaries were tribals. Others were from Scheduled Castes and socially and educationally backward communities. The Gujarat Tribal Development Corporation has helped more than 40,000 tribals by advancing Rs. 41 crores. Another special feature in Gujarat is the provision of Nucleus Budget for each I. T. D. P. areas. Each year, a certain amount is placed at the disposal of Project Administration to meet the urgent need or special requirement of particular project area. These funds have been utilised for meeting peculiar needs. For instance Rajpipla Project Administration has provided 50 per cent subsidy for cycles for tribal students coming to schools from more than 5 kms. distance. Thus, a students can have a cycle for Rs. 202 while in market it is available for Rs. 400.

Thus the era of development has dawned on the tribals of Gujarat. (*P.I.B.*)

STEP BY STEP

Coconut and Cashew Cultivation

INDIA ranks third amongst the coconut growing countries and shares about 17 per cent of the world production of coconut. It is one of the major sources of livelihood for a considerable section of the rural population. Coconut is grown in an area of about 10,67,000 hectares and has a production of 5,471 million nuts.

Cashewnut is of considerable importance to the Indian economy as a source of foreign exchange, employment and farmer's income. At present, cashew valued at Rs. 147 crore is being exported from India. India's share in the world trade of cashewnut is about 44 per cent. The production of cashewnut at present is estimated to be 1,80,000 tonnes.

BHEL Supplies Rs. 1260 crores worth Gensets

THE Bhopal Unit of Bharat Heavy Electricals Limited has so far supplied generating equipment totalling 7134 mega watt worth about Rs. 1260 crores for different projects in the country and abroad. This was stated by Shri S. P. Singh, Executive Director, BHEL-Bhopal in his Independence Day address to BHEL employees in Bhopal recently.

The equipments supplied by BHEL Bhopal includes: 58 hydro sets totalling 3788 MW, 11 hydro generators totalling 551 MW for export, three hydro turbines totalling 87 MW for export, 23 thermal sets totalling 2220 MW, two nuclear turbines and one fast breeder test reactor totalling 488 MW. The major transmission and utilisation equipments supplied by BHEL-Bhopal include: 44800 MVA of power transformers; 24,000 Nos. switchgear; 13,000 Nos. controlgear; 3.700 MVA of capacitors: 5.100 Nos. industrial machines and 12,400 Nos. traction machines. BHEL has already executed export orders valued at Rs. 51 crores, covering various products.

The Other Antyodaya

(*Continued from page* 3)

methods of farming and spreading of literacy. They should also strengthen the economic bonds among themselves and with the developing countries. If they keep up the same fervour as shown in winning political freedom they can also attain economic independence before long.

TRENDS

Achievements of N.E.C.

THE North Eastern Council recently completed 9 years of its service for the cause of Socio-economic advancement of the North-Eastern Region. The Council has so far spent an amount of Rs. 170.67 crores including Rs. 51.42 crores during the year 1980-81. With a total expenditure of Rs. 90 crores Water and Power Development has received the highest priority in the NEC Plan during the last few years. The North Eastern Council has built 400 kms. road and repaired 1100 kms. of road in the region with an expenditure of Rs. 50 crores. The North Eastern Council has been playing a vital role in strengthening the Railway and Air Communications in the region. It was due primarily to the efforts of the North Eastern Council that the Rs. 35 crores project of extension of broad gauge line from Bongaigaon to Gauhati was taken up and is in advance stage of implementation. The council has set up scores of nurseries and seed farms and regional farms for development of dairy, poultry, piggery and other domestic animals and birds.

North Eastern Council has also sponsored several schemes for development of sericulture, horticulture, fisheries, plantation crops like coffee, rubber, tea and cardamom and has been supporting the expansion of facilities for studies in medicine, agriculture, animal husbandary, nursing, dental surgery and pharmacy courses. It has also extended financial assistance for development of different Institutions like Forensic Laboratory, Pasteur Institute and Agriculture University and has also sponsored the North Eastern Handicrafts and Handlooms Development Corporation.

Over 2000 students and trainees have been benefited by the stipends offered by the North Eastern Council for different graduate post-graduate and short-term training courses. ☐

Country Needs More Artificial Limb Centres

SHRI B. Shankaranand, Union Minister of Health and Family Welfare has said that more and more artificial limb manufacturing centres should be set up in the country, especially in the rural areas, so that the physically handicapped can be rehabilitated.

Speaking at the Foundation Day Celebrations of the Handicapped Welfare Federation in New Delhi recently the Health Minister observed that cheap, locally manufactured and easily available artificial limbs was the need of the day. He said that something should be done for the handicapped in the farflung rural areas in the country, where not many centres manufacturing artificial limbs exist. He referred to the tremendous interest the Prime Minister has in the rehabilitation of handicapped and said that she had recently opened a rural artificial limb manufacturing centre in Orissa.

The Health Minister observed that the handicapped required, more than anything else, moral support from the society, so that they feel that they are equal members of the society. He said that a physically handicapped person was in no way inferior to a normal man. Given the goodwill and opportunity, he can overcome his physical disabilities and keep himself fruitfully occupied, he added.

Tamil Nadu Micro Hydel Schemes

SCHEMES formulated by Tamil Nadu for setting up two micro hydel power stations -one at Vaigai dam (22.34 GWH) and another at Pykara dam (9.8 GWH). have been approved by the Planning Commission. The total estimated cost of these schemes is Rs. 544.55 lakh. ☐

Incentive Bonus Scheme at NFL Nangal

THE management of the Nangal Unit of the National Fertilizers Limited has introduced an integrated incentive bonus scheme with a view to improve the overall performance of the Unit by improving the production capacity utilization, securing optimum manpower utilization and reducing the consumption of major process material through better operation, process control, and maintenance of equipment. The scheme is intended to provide opportunity to nearly 3,300 employees to improve their earnings while achieving above objectives. ☐

Role of Medicine in the Prevention of Handicapping conditions

(*Continued from* 26)

and promote early return to function of patients in the acute wards of hospitals is to be underlined. The benefits wil surely be reflected in the statistics of chronic bed-sores, disabling constriction of joints and in the functional status of patients later on admitted for intensive rehabilitation. By using simple inexpensive protective splints correctly at the correct time by the diligent application of principles of positioning, change of posture and movements, major crippling can be prevented very often, and also drastic surgical procedures avoided.

In conclusion I wish to stress that for medicine to play an increasingly effective role for the prevention of handicapping conditions of all types, more attention is to be paid to the educational and reasearch aspects of the problem. On the educational side, a lot more instructional material is to flow to the general parctitioner as well as the public. Refreshery courses are to be given in major medical centres for the orientation of doctors and nurses stressing the value and methods of preventing handicapping diseases as well as accidents. There should further be a renewed effort to build into the basic curriculum of medical and nursing students the principles of medical rehabilitation paying special attention to preventive rehabilitation methods. The aim is to see that prevention of handicap, like basic medical treatment, becomes a matter of primary concern for each doctor and the health personnel working with him.

BOOKS

Input-Output Study

Structural Analysis of Gujarat, Punjab and Haryana Economies, An Input-Output Study by V. K. Alagh, G. S. Bhalla & S. P. K. Kashyap, Allied Publishers; Price Rs. 75.00.

THE use of input-output framework to analyse regional economies in developing countries is a challenging job specifically due to the inadequate and sometimes unreliable data base. In this context, the work done by the authors for the economies of Gujarat, the Punjab and Haryana reveals the aspects that confront a researcher while constructing an input out framework to find out the inter industry linkages.

The book is divided into two parts. The first part deals with the discussion of the sources of statistical information, the limitations of the statistical data and the methods used for constructing the input-output tables for the three economies.

The second part deals with a comparative analysis of the three economies. The authors use Leontief Inverse matrices to find out the direct and indirect effects of various types of final demand on income and employment. Rasmussen's method is used to estimate the forward and backward linkages.

The controversial aspects of employment effects of the New Agricultural Technology have been adequately dealt within the model for the two agriculturally developed economies of Haryana and the Punjab, the direct and indirect effects of Green Revolution on employment have been estimated. Since the estimation procedure as well as their limitations are given, it will help the future researchers to carry out modifications in the model according to specific situations.

This work is strongly recommended for students, teachers and researchers.

Dr. D. Tripathy

Rural Poverty

Eradication of Rural Poverty—A collection of Seminar Papers Published by Sri Ramakrishna Mission Vidyalaya, Coimbatore. Pages 261, Price Rs. 12.

THIS collection of contributions to the literature on rural development is now four years old. The seminar which occasioned their writing took place two years earlier, in November 1975. Such a lot has been written since then about Indian rural poverty in general, that the present book by normal standards ought to be out of date. Yet it is not and this is so apparently for two reasons. One is that most of the articles in the book are authoritative and tidy statements of the basic virtues of various action programmes which have not lost their validity by efflux of time. And they are presented with sincerity. The other reason has to do with the distressingly enduring quality shown by rural poverty itself, in India. A book like this on the ways and devices of pulling poverty out by the roots will not lose its topicality easily.

The paper by Shri S. Venkatraman of the Canara Bank is a candid piece which advocates a "fundamental departure from our existing attitude towards industrialisation and planning", including a radical departure from the western concept of economy of scale. The remaining articles address themselves to the tasks entailed in the process of poverty eradication. They add up to a vast malady-remedy analysis ; such proposals as they make are in their totality utopian. The seminar of the book has formulated recommendations which are given in summary at the end of the book. Only a few have risen above platitude and are worthy of notice—such as the recommendation that separate autonomous agencies like SFDA, MFAL, DPAP etc. should be brought under the management of one agency ; that certain industries should be reserved exclusively for the rural cottage sector and banned for the organised sector and that all technical training institutions like ITI's and Polytechnics, should organise rural consultancy cells and conduct summer camps at selected villages. The first has become part of Government policy in later years ; the second nearly did so.

Those who wish to get acquainted with the modalities of rural development work will find the book educative. It provides good reading on rural development.

M. A. S. Rajan

Translation

The Art of Translation by Uma Shankar Joshi and I. Panduranga Rao. Published by the Indian Institute of Mass Communication, New Delhi 1980, Pages 28, Price Rs. 3.

TRANSLATION is no easy job. It is an art. The booklet contains two articles written by two eminent authors. Prof. Uma Shankar Joshi says "what the translators does is the conversion of symbols decided by a cultural milieu into symbols which are born of another cultural milieu". For him translation is a substitute to original work. The translator of a lyric at best is an approximation. He suggests that sentence by sentence translation is better than word by word reading, because in the earlier one the entire meaning and context is kept in mind. People would expect the translator not to meddle, not to interfere, not to stand between, not to throw a curtain, but to be like a pane, transparent, so that they can see the real thing.

Dr. I. Panduranga Rao's article deals with some aspects of translation. For him translation is a science as well as an art. Journalistic and publicity items should be couched in common man's language, keeping in view the needs of various mass media. While appreciating the efforts of various Government and private institutions in rendering valuable service to the cause of exchange among various Indian languages he suggests that standard of translation, production and distribution should be inporved and training schemes for translators should be arranged. While translating scientific and technical subjects, precision is the first priority. Once a term is coined it should be used in actual day to day work, he says.

Dr. Rao gives some characteristics of a good translation. One should be able to understand the translations without the help of original. The language should be simple and content original. The translator should have thorough knowledge of both the languages, the subject matter, the technical terminology and have self-confidence.

This booklet will be useful to the beginners in the art nd science of translation.

R. R. Rao

Dairy Development

Continued from page 12

Table 4

Average feed consumed per day per milch animal, Karnal, Haryana

(in Kgs.)

Category	Cows			Buffaloes		
	Green	Dry	Concentrates	Green	Dry	Concentrates
Landless	16.2	2.77	0.011	20.7	6.51	0.188
Marginal	18.1	2.58		24.1	6.36	0.075
Small	20.0	3.22	0.057	25.3	7.13	0.089
I Medium	22.1	3.55	0.052	27.3	7.71	0.131
II Medium	22.2	5.74	0.079	25.1	8.00	0.121
Large	20.9	6.39	0.055	26.5	8.66	0.284

was however much less marked in the case of cows than buffaloes. Milk production per household also increased steadily with size of holding. The differences in yield between animals belonging to the poor and rich farmers could be directly related to the average feed consumed per day per milch animal. This information, given in Table 4, indicated that the quantity of green and dry fodder fed per animal per day increased with increase in the size of land-holding. Buffaloes were fed more concentrate and fodder than cows and also gave better yields. One interesting fact brought out by this data is that landless labourers were second only to the large farmers in feeding concentrates to buffaloes. This data from Haryana however needs to be used with caution as it is a prosperous area with greater availability of fodder and concentrates and levels of income of all groups of farmers is higher than average. ☐

Growing Plants in Air

PLANTS are growing in the air in Israel. Thanks to "Aeroponics", a new Israeli agricultural system that eliminates the need for conventional soil or water methods. Instead of being cultivated in rows of ploughed fields, the plants grow in sealed troughs where their exposed roots received nutrient-enriched mist from a computer-controlled spray system. Lift the plastic lid of one of the empty tubs and the plants come off right along with it—their bushy roots dangling freely.

"Until people see it with their own eyes it is hard for them to believe it", says Amiram Keshet, Director of Adi Ltd., the Israeli Company that developed the technique.

Aeroponics use less water, less fertilizer and less energy and experimental yields are 34—200 per cent higher than those of soil farming.

Seven years ago Keshet's partner, Dr. Isaac Nir, got the idea to grow plants in the air from hydroponics—the system that grows plants in enriched water. The most expensive process in hydroponics is infusing the water with oxygen the plants need.

Initial costs are still a probelm. A. 90-square-foot unit with computer console and special fogging systtm sells for $ 5,00. But 15 Israeli farmers are already using the system, and Adi has sold three sets of modular tubs to American companies in Connecticut, North Carolina and Florida.

Keshet proposes that aeroponics be used in the United States to grow saplings quickly for reforestation programmes. Taking tree cuttings and sprouting them in air knocks a year off the time it normally takes in American tree nurseries, he claims.

And, to top off the promising prospects of aeroponics the taste of aeroponic vegetables can be controlled by regulating the mineral content of the liquid nutrient.

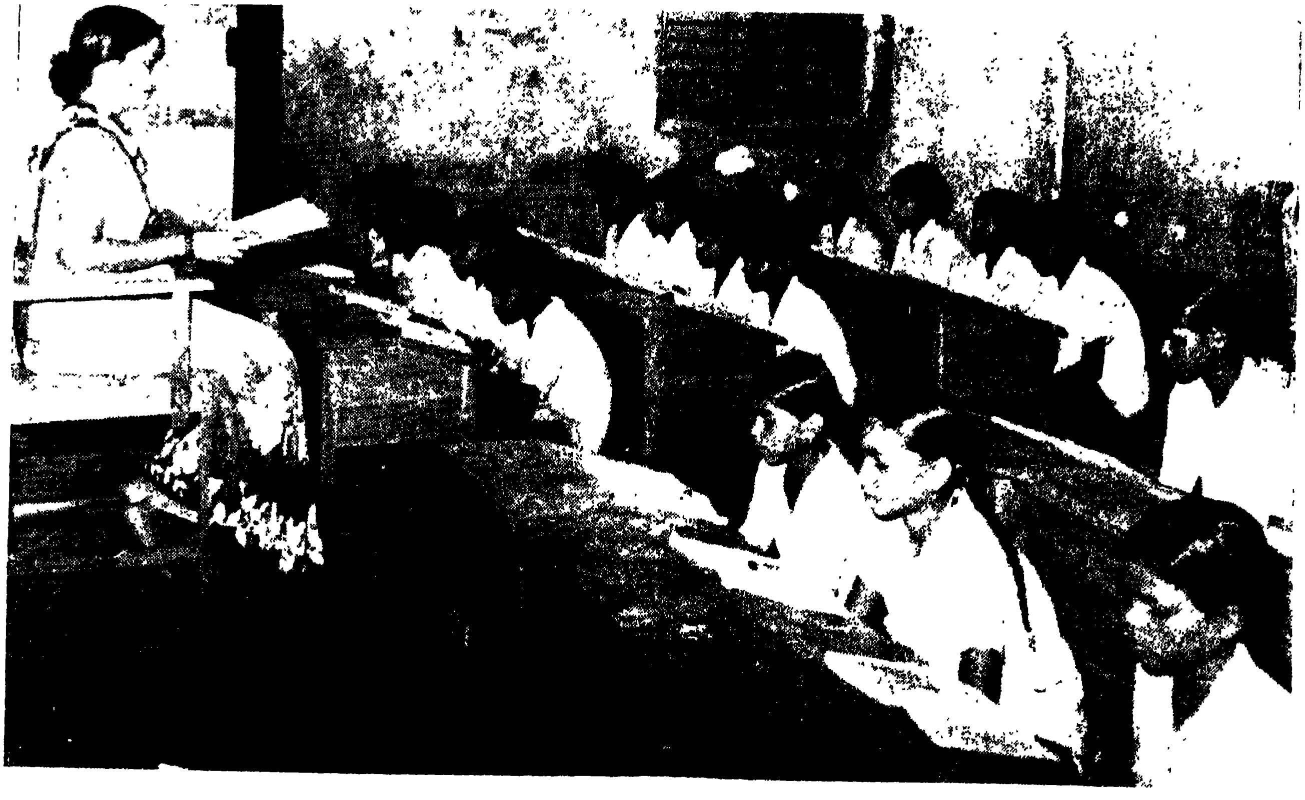
(News from Israel)

Better Days Ahead for Gujarat Tribals

Above : *In Dangs, veterinary services are made available through mobile vans*

Below : *An Ashramashala at Pimpri village in Dangs District in Gujarat*

Cover IV : *Newly built huts for Kotwalias, one of the primitive tribes of Gujarat at Wagh*



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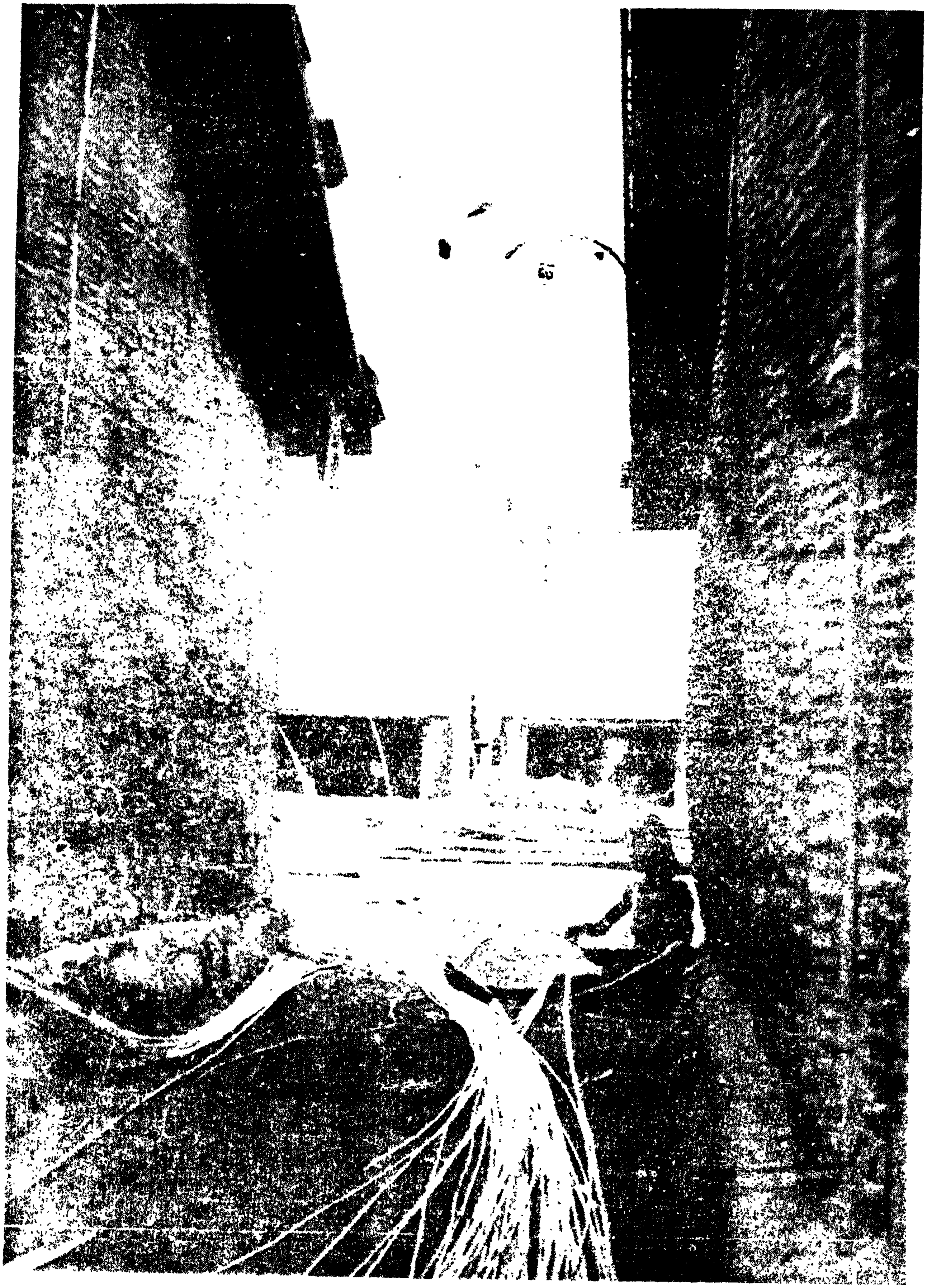

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RUPEE ONE

Social Services in Sixth Plan

Pitfalls in Rural Development

Disabled children at a play centre

Welfare of the Disabled in Karnataka

M.R. Gavirayappa*

IN Karnataka welfare measures for the disabled were initiated as early as in 1901 by starting a school for the blind and the deaf in Mysore city. Now the State has four residential schools for the blind, three for the deaf, one after-care home each for the mentally rettarded women and men. These State Government run institutions are in Mysore, Gulbarga, Hubli and Belgaum. There are two institutions for the mentally retarded in Bangalore.

Training for the deaf and blind is imparted in various vocations including cane work, sewing, knitting, carpentry and weaving. Music is also taught to the blind. Several of them are working as music teachers in educational institutions.

Physically handicapped students studying in classes upto VIII get scholarships if the annual income of their parents does not exceed Rs. 10,000. In addition, blind students get reader's allowance and orthopaedically handicapped persons get transport allowance. Financial assistance is also given for the purchase of hearing aids, motorised tricycles, tricycles, artificial limbs and calipers. If the annual income is less than Rs. 6.000 the assistance is hundred per cent. The assistance is limited to 75 per cent if the family income is between Rs. 6,000 and Rs. 12,000.

Maintenance Allowance

One of the steps of far reaching importance has been the sanction of the monthly maintenance allowance of Rs. 40 for the physically disabled persons

(*Contd. on Cover III*)

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Editorial

Industrial Dispersal

EVEN though the planning process has been from the very beginning conscious of the need for balanced regional development, special measures for the industrialisation of backward areas were taken only from 1971. They include investment subsidy, concessional finance and income tax relief. After the 1980 Industrial Policy Resolution, a rail transport subsidy has also been provided for hilly and inaccessible areas.

In spite of these concessions, the backward districts, which number 247, have not made any significant progress in industrialisation. The industrial estates established earlier have not also helped these areas. As a recent report of the National Committee on the Development of Backward Areas says, "many of the promising approaches towards dispersal of industries have not in fact been pursued" by the Government. These districts could not secure their due share from the all-India lending institutions. The benefits from Central concessions have mostly gone to the backward districts located in industrially advanced States. The bulk of the labour employed in the industries in these districts has come from outside. The industrial licensing policy, through its restrictions on locating industries in specified urban areas, has only been a negative instrument. As the Committee says, a policy of deliberate dispersal of industries should be followed. For this purpose, the Committee suggested varying cut-off distances from developed urban centres for granting concessions. It has also recommended concentration of promotional efforts in the growth centres with some already available infrastructure and the setting up of an industrial development authority, with adequate powers, in each centre.

A conference of State Ministers of Industry, held a fortnight back in New Delhi, considered the recommendations of the Committee in detail. The conference recognised that industrial dispersal is an integral part of the total strategy for industrial development in the country. It welcomed the scheme for establishing nucleus industrial plants and asked the Centre to decide early the incentives for investors under this scheme. There were differences among the Ministers regarding the criteria of cut-off distance and the sharing of growth centres between the backward and developed States. This shows that the advanced States are reluctant to change the policy hitherto pursued.

The Government's recent decision to encourage industries which have a potential for ancillarisation to shift to backward areas will help the development of these areas. Japan has been following this practice for a long time with tremendous success. There is much scope for establishing ancillary units in engineering, electronic, chemical and some other industries. Industrialists will also benefit from such dispersal since it will reduce the cost of production. The district industrial centres can play a more useful role by providing facilities for the ancillary units. The development of infrastructure facilities in backward areas will speed up their industrialisation. Training institu-

(Contd. on p. 20)

Sixth Plan :

First Year's Progress

and

Second Year's Prospects

R. C. Ui

THE seven per cent increase in the gross domestic output last year should suggest that the first year of the Sixth Plan was able to witness more than proportionate growth envisaged during the five years from 1980-81 to 1984-85, the average annual growth expected being only 5.2 per cent. But this macro performance conceals several disconcerting facts.

The above overall impressive growth resulted primarily from the upswing in agricultural production by as much as 19 per cent over the previous year. But since the farm output in 1979-80 had suffered a setback of 15.5 per cent, the contrast got sharpened a great deal. The overall growth in the base year of the Plan had been down by 4.5 per cent in comparison with 1978-79. So, over this year, the 1980-81 performance was just moderate—about 2.5 per cent in two years. This has been much below the average annual growth of 3 to 3.5 per cent over the nearly 30 years of planning.

Much more disconcerting, however, is the fact that although in financial terms, the total outlay in the public sector, estimated at Rs. 15,058.26 crores, fell short of the targeted outlay of Rs. 15,109.03 crores just marginally, significant lags occurred almost in all sectors except the agricultural and rural sector in which the overall actual outlay exceed the planned one. Thus, while the expenditure on agricultural growth, and rural development, special area programmes and irrigation and flood control, is estimated to have been around Rs. 3983.69 crores—Rs. 139.94 crores more than the planned expenditure of Rs. 3,843.75 crores, that in such key and high priority sectors as energy, industry and minerals, transport and science and technology has been around Rs. 3,893.39 crores, Rs. 2234.20 crores, Rs. 2,008.19 crores and Rs. 108.99 crores as aganist the targets of Rs. 3,971.86 crores, Rs. 2,279.29 crores, Rs. 2,041.17 crores and Rs. 120.75 crores respectively. Concerted endeavours were envisaged to be made in these sectors in the interest of accelerating the overall growth in the subsequent years. The expenditure on social services and in the communications sector, estimated to have been of the order of Rs. 2,096.54 crores and Rs. 460.34 crores, fell short of the targets of Rs. 2,229.05 crores and Rs. 503.03 crores, even more markedly.

If, however, due allowance is made for the 21.4 per cent inflation in 1979-80 and 16.4 per cent rise in the wholesale prices index in 1980-81, the public sector outlays obviously fell short of the envisaged ones (on considerations of reasonable price stability) more significantly in all the sectors. In the rural sector, incidentlly, the expenditure on irrigation and flood control at Rs. 1800.17 crores was also lower than the projected Rs. 1,824.54 crores.

Some shortfalls in financial outlays, of course, could not be ruled out because of the change in Government not only at the Centre but also in many States : it takes time to gear up developmental machinery to new tasks. But the pitch also had been queered by the 1979-80 drought and the political developments in the latter half of that year. The dismal performance of the first half of 1980-81 too had to be contended with.

Farm Production

In terms of physical targets, notwithstanding the overall agricultural output rebounding well last year, in conformity with the trend of the past decade or so of making up the loss in production in a year of lean rainfall in the following normal year—an eloquent testimony to the resilience Indian agriculture has developed through planned efforts—serious lags continued to occur in the attainment of the targets for the production of pulses and oilseeds, the two items which have been responsible for no small pressure on the priceline. Whereas the output of cereals slightly exceeded the target of 121 million tonnes, that of pulses, though improving from 8.4 million tonnes in the previous year to 11.5 million tonnes, fell short of the 14 million tonnes target by as much as 2.5 million tonnes. The production of oilseeds at 10.2 million tonnes, as against 8.4 million tonnes in 1979-80, was lower than the 11 million tonnes target by 0.8 million

Associate Editor, Eastern Economist.

tonnes. The targeted output of sugarcane—180 million tonnes too failed to materialise, it being of the order of about 152 million tonnes. Cotton production fell short of the 8.1 million bales target by just 0.12 million bales. Along with cereals, jute and mesta production, of course, hit the target of 8.3 million bales.

The performance on the cereals front, indeed, has been commendable, for the targeted level of production was achieved despite lower-than-expected application of fertilizers and pesticides and some lags in the availability of high-yielding varieties of seeds, particularly paddy and maize. Lower application of fertilizers, apparently, was due to a sharp fall in indigenous production following disruption of crude oil supplies, particularly to the Barauni refinery from Upper Assam due to agitation on foreign nationals' issue. The development of the animal husbandry and dairying sector, fisheries, etc., of course, has been kept up well.

In agricultural infrastructure, whereas some lags have been there in the production of fertilizers, pesticides, high-yielding varieties of seeds and land conservation, the most heartening development has been that progress on the irrigation front has been approximately upto the expectations of raising the potential to 59.25 million hectares and utilisation to 55.58 million hectares. The minor shortfalls of 0.18 million hectares and 0.46 million hectares respectively, were due to such factors as shortages of cement, steel, explosives, power, etc.

Industry and Transport

The growth in industrial output by just about 3.4 per cent, of course, left much to be desired as it was expected to be stepped up by about eight per cent. Infrastructure constraints, particularly in the first quarter of the year and to some extent in the second quarter as well, were primarily responsible for this. These two quarters witnessed an overall negative industrial growth in continuation of the 1.4 per cent decline in the previous year. With the hydel generation starting improving after June and infrastructure constraints being overcome through concerted action, the situation, of course, took a wholesome trend and the overall industrial output improved from a minus growth of 2.4 per cent in the first quarter to a positive growth of 2.1 per cent in the second, 6.4 per cent in the third, culminating in the fairly impressive 8.4 per cent increase in the terminal (January—March, 1981) quarter. The industrial relations situation, significantly enough was well contained.

As a result, although a large number of important industries—coal, lignite, copper, phosphatic fertilizers, sugar, vanaspati, cotton textiles, automobile tyres, drugs and pharmaceuticals, paper and paper board, machine tools, farm equipment, railway wagons, commercial vehicles, motor cycles and scooters, power generation equipment, electronics, etc.,—showed sizeable increases in production over the previous year, only a few industries such a coal, cotton textiles, jute manufactures, automobile typres, machine tools, commercial vehicles, motor cycles and scooters, and some items of industrial machinery could either hit the targets or exceed them. Production, however, suffered a setback in the case of nitrogenous fertilisers, crude oil and petroleum products, zinc, etc., while in two key industries, steel and cement, it was only marginally higher than in the previous year.

On the whole, while power generation improved during the year by 5.7 per cent, the mining and manufacturing sectors registered an increase of only 3.9 and 3.2 per cent respectively. Regrettably, the addition to power generation capacity around 1,823 MWs fell short of the target of adding 2,687 MWs. The utilisation of the existing capacities, of course, showed some heartening improvement.

The situation on the transportation front too continued to be less than satisfactory even though it eased to some extent in the second half of the year. The railways could move only 219 tonnes of total originating freight traffic, as against the target of 240 million tonnes. In terms of tonne-Kms, the shortfall was from 166.7 billion to 157.5 billion.

Adverse Factors

Three other important developments must also be referred to. First, the balance of trade grew more adverse, partly due to a sharp rise in the import bill following further increase in the international oil prices and partly to exports not materialising upto expectations. Provisional figures put the exports at not more than Rs. 6,700 crores, although it is still being hoped that the final tally will raise them to the targeted level of Rs. 7,100 crores. Secondly, the rise in prices at 16.4 per cent still continued to be a matter of serious anxiety, though it was lower than the previous year's inflationary rate of 21.4 per cent. Thirdly, both the State governments and the public sector undertakings failed to mobilise resources for development as expected of them.

The above, however, does not mean that the achievements during the first year of the Sixth Plan have been lacklustre or just moderate and only favourable weather conditions or such other factors have led to the revival of economic activity. Favourable weather conditions did assist farm output to, by and large, improve quite impressively. But the impact of concerted action of the government of reducing infrastructure constraints and fostering agricultural development itself too has not been insignicant. But for these efforts, the marked improvement on economic front, particularly since January, would not have been possible. The full benefit of these endeavours, which are being continued, of course, will be derived during the current financial year.

The Second Year: More Outlays

The 1981-82 Plan, as could be expected, has been drawn up not only within the framework of the objectives and priorities envisaged in the Sixth Plan, but also, and quite appropriately, taking into account the economic situation as it developed last year. Recognising that, even though infrastructure constraints have eased considerably, a steady improvement in this vital sector alone can foster growth, it contains a substantial step-up in the investments in this sector.

The overall public sector outlay for the current year's Plan has been raised by 15.3 per cent to Rs. 17,417 crores. The highest priority in sectoral allocations has been provided to the energy, transportation, irrigation and such key basic industries as steel, fertilizers and cement. The energy sector (power, petroleum and coal) has been allocated 21 per cent more outlay (Rs. 4821.87 crores, as against Rs. 3971.86 crores in the 1980-81 Plan.). The transporation sector gets over 12 per cent more (Rs. 2294.46 crores, as against Rs. 2041.17 crores) and irrigation and flood control also a similar increase in outlay (Rs. 2006.80 crores as against Rs. 1824.54 crores). These three sectors account for nearly 50 per cent of the current year's total public sector outlay.

The public sector outlays for the industry and mineral sector and for science and technology too have been increased markedly from Rs. 2277.29 crores and Rs. 120.75 crores to Rs. 2686.45 crores and Rs. 153.33 crores, respectively The major increase in the case of the industry and mineral sector has been for the development of such important basic industries, as steel, cement, petroleum and fertilizers, power generation equipment, machine tools, electronics, etc.

The outlays in the other sectors have been raised as follows: agriculture from Rs. 966.23 crores to Rs. 1043.47 crores, rural development from Rs. 872.77 crores, Rs. 1019.08 crores, special areas programmes from Rs. 180.21 crores to Rs. 270.09 crores, communications from Rs. 503.03 crores to Rs 573.06 crores, and social services from Rs. 2229.05 crores to Rs. 2412.66 crores.

The thrust of development as indicated by the above public sector allocation is abvious—in favour of infrastructure improvement and ameliorating of the lot of under-privieged. It is as it should have been.

Physical Targets

In physical terms, the current year's Plan envisages the following growth over the 1980-81 anticipated levels: (i) Agriculture: Foodgrains 138.5 million tonnes (133 m tonnes)—(of this pulses 12.5 million tonnes from 12.5 million tonnes); oilseeds 11.2 m. tonnes (10.2 m. tonnes); sugarcane 180 m. tonnes (152 m. tonnes); cotton 8.4 m. bales (7.98 m. bales); jute and mesta 8.4 bales (8.3 m. bales); introduction of high-yielding varieties of seeds 48.5 hectares (46.2 m hectares); fertilizer consumption 6.6 m tonnes (5.4 tonnes); pesticides application 66,000 tonnes (52,000 tonnes), area under soil conservation 25 m. hectares (24.2 hectares).

(ii) Irrigation: Addition to potential 2.5 m. hectares (2.46 m. hectares).

(iii) Energy: Generation 130 billion units (118.5 billion units); capacity addition 3,212 MW (1,856 MW); Coal 121 m. tonnes—revised to 124 m. tonnes (114 m. tonnes); crude oil 16.84 m. tonnes 10.5 m. tonnes).

(iv) Industries: Saleable steel 8.77 m. tonnes—revised 9.27 m. tonnes (7.78 m. tonnes); nitrogenous fertilizers 3.2 m. tonnes (2.15 m. tonnes); cement 22 m. tonnes (18.5 tonnes); paper and paper board 1.2 m. tonnes (1.1 m. tonnes); newsprint 70,000 tonnes (48,000 tonnes) commercial vehicles 85,000 Nos. (71,000 Nos.); Vanaspati 0.775 m. tonnes (0.747 m. tonnes); sugar 6 m. tonnes (5.1 m. tonnes) consumer electronics Rs. 295 crores (Rs. 234.5 crores); industrial electronics Rs. 175 crores (Rs. 145 crores).

(v) Transport: Railways total originating freight traffic 240 m. tonnes (219 m. tonnes) or 172.6 m. tonne-Kms. (157.5 m. tonne-Kms.).

The progress achieved so far, indeed, augurs well for the attainment of this year's targets, except in agricultue. Power generation has grown during the five months Apr. to August by about 16 per cent (as against the targetted 10 per cent growth for the year). Coal output has been higher by nine per cent and that of saleable steel by 26 per cent. On current reckoning, industrial output over the year should grow by over 10 per cent. It registered a growth of 11.2 per cent during the first quarter compared to the corresponding period last. Impressive gains have already been registered in such industries as fertilizers, non-ferrous metals, crude oil and refining, electrical, chemicals, etc.

No doubt the absence of rains in the recent weeks in north-west India has cast shadows on the current kharif harvest, which may necessitate some more imports of wheat than the 1.5 million tonnes already contracted; the overall agricultural output is not likely to swffer any sizeable setback from the last year's level. On the other hand, industrial production is improving much more impressively than in the last year, even though the spectacular gains to the first five months have to be discounted by the dismal performance particularly during April—June last year. The increase in the gross domestic product this year, therefore, should be fairly marked. The shortfall from the target of 4.5 per cent may be just marginal, if at all.

Good Signs

The encouraging trends on the industrial front can be expected to have a very salutary impact on the adverse trade balance, notwithstanding the resort to wheat imports and the continuing need to import large quantities of edible oils and some sugar. Besides the softening trend in the spot prices of crude oil and petroleum products, the impressive rise in domestic production of both crude oil and products (in the latter case, due to the expected commissioning of the Mathura refinery in the next few weeks) will go a long way in containing the oil import bill. The same should be the case in regard to imports of fertilizers, steel, aluminium and non-ferrous metals, cement, etc. In fact, some small quantities of surplus steel products may be exported. Though the current Plan document expresses anxiety in regard to balance of payments, the pressures on it should get mitigated somewhat not only due to the above developments in imports but also exports getting enlarged. This year's target for export is Rs. 8,400 crores—a step-up of Rs. 1,300 crores over the last year's proejection. Containment of pressure on the balance of payments position is the other laudable objective of the current year's

Plan. Incidentally, another helpful factor in this regard is the significant increase in foreign exchange earnings from tourism.

Price Prospects

The price situation, a marked improvement in which is the third major and appropriate objective of this year's Plan, of course, may continue to cause serious concern due to the absence of crucial late August and mid-September rains in north-west India, which has emerged the crucial supplier of rice to the Central stock. A lean coarse grains harvest will add to the pressure of the wheat stock. The recent increases effected in the prices of crude oil, steel and various other essential inputs have injected significant cost-push inflation. The buoyancy in governmental revenue, some reduction in the budgetary support for the developmental programmes of public sector undertakings, particularly oil exploration and production (following the improved profitability of these enterprises) and the economy measures that are being taken, should ostensibly help in containing this year's budgetary deficit within the stipulated level. However, this calculation will be upset by the increasing burden of dearness allowance to governmental staff as well as defence expenditure, necessitated by the massive build-up of Pakistan by the U.S.

Similarly, although the expansion in money supply last year was brough down to some extent and the dear money policy is still being pursued vigorously, any substantial deceleration in the growth rate in this regard cannot be expected if production is not to be hampered. All these are ominous portents on the price front.

The overall objectives of the current year's Plan and its major thrusts are not misplaced. It, however, remains to be seen whether the financial allocations made will prove sufficient for the targets set. Inflation has eroded the value of the rupee. Not much allowance is made for this in the financial parametres of the Plan, which is a serious snag in our planning process. This year's performance should be gratifying. But what about the investments for future growth? They have to be kept up in real terms. With approximately 10 per cent inflation during the first two years of the Plan, is it possible to achieve the physical goals with the envisaged overall financial allocations in the Plan for the five years? Surely not. ☐

Encouraging Performance of Regional Rural Banks

THE performance of Regional Banks (RRBs) is "encouraging". Despite the constraint of limited area of operation, an unhelpful topography and an unenterprising clientele, the RRBs have so far been able to achieve the main objective of helping the weaker sections of society. This is disclosed in a study prepared by the Rural Planning and Credit Cell of the Reserve Bank of India (RBI) which has studied the performance of 15 selected RRBs. Of these four banks have become viable while the others may achieve viability in the next two to three years.

The RRBs were first set up in October 1975. By June 1979 there were 56 of them, covering 102 districts in 17 States. By the end of 1978 each RRB had on average advanced directly a total loan of Rs. 3.35 crore to about 42.000 borrowers at a rate of about Rs. 800 per account indicating the preponderance of small loans. Each RRB covered about 1.6 million hectares and a population of 3.7 million.

Fertiliser Production Looks Up

WITH the disappearance of feed-stock and local shortages which plagued the fertiliser industry last year, it is now expected that nitrogen and phosphates production would rise sharply during 1981-82.

Nitrogen production, which did not go beyond 21.6 lakh tonnes in 1980-81, is expected to be 32 lakh tonnes during the current year, marking an increase of 10.4 lakh tonnes.

Similarly, phosphates production would be about 9.25 lakh tonnes this year, a marked increase over last year's production of 8.4 lakh tonnes.

These expectations are underscored by production results of April and May 1981 when production was 4.3 lakh tonnes of Nitrogen representing a substantial increase of 1.4 lakh tonnes over the previous year's production of 2.9 lakh tonnes during these two months.

Meanwhile, five new fertiliser projects—Haldia and Trombay V in the public sector GNFC (Bharuch) and Kanpur (Expansion) in the private sector and Kandla (Expansion) in the cooperative sector are under commission and would go into regular production during 1981-82. ☐

Big Increase in Coal Output

AS A result of various measures taken by the Government there has been a significant increase in the coal production. In June 1981 the Coal India Limited under the Ministry of Energy recorded an increase of 15 per cent in coal output over the corresponding month last year It also exceeded the target for the month. The coal companies produced 8.20 million tonnes of coal during the month as against 7.15 million tonnes during the corresponding month last year.

The high increase in production was recorded by all the subsidiary companies. The ECL registered an increase of 22 per cent; BCCL 23 per cent; CCL 12 per cent, WCL 8 per cent and NFC 14 per cent. For the first quarter as a whole the coal production was 24.5 million tonnes against about 23 million tonnes last year. Coal India has, thus, achieved a growth rate of 7.2 per cent in the first quarter over last year's production which has exceeded the planned growth rate of 5.2 per cent for the year as a whole. With the present trend in coal production, Coal India is confident of achieving its target of 106 million tonnes for the year as a whole.

Social Services

Women and the Sixth Plan

Devaki Jain*

THE question of integrating women into the Plan, at the formulation-document level, still evades a satisfactory answer. The Sixth Five Year Plan 1980—85, vividly reflects this gap, between the intention and the design.

The Plan has a Chapter (Chapter 27) which is a strong, supportive analysis of the situation of women, their neglect, their importance for nation building. It commits itself to provide for women, access to education, employment and health. The total budget for social welfare which is one of the strong sectors for women and development has been increased from 63.53 crores in 1974—79 to 150.40 in 1980—85.

Responding to the strong recommendation of representatives of women that child care facilities must be intensified and expanded as a priority need for women, the outlay on the integrated child development programme otherwise known as ICDP has gone up from 7.40 lakh in 1974—79 to 45 lakh in 1980—85. Alongwith this 4 crores are being given from the rural development sector to the NDDB (National Dairy Development Board) for implementing the ICDP. Thus apart from covering more blocks with ICDP, the plan is also attempting to follow the strategy of giving social inputs such as child development services where there are women intensive economic programmes such as the dairy programme. This certainly is an innovation which should be welcomed and which can be immitated by other large economic programmes like NREP and IRDP.

Strengthening Grass Root Women Organisations

Following the recommendations of the working group on rural women's organisations, the plan has put in about Rs. 2 lakhs to promoting and strengthening grass root women organisations. In the strategy it is also mentioned that the concept of funding Mahila Mandals for socio-economic programmes will be to give seed money rather than fixed grants so that the Mahila Mandals can then canvass with other financial institutions for making their programme viable. This is a response to the recommendations by the same committee.

Some other pertinent statements in Chapter 27 are :

"In the Plan, the basic approach is of the family as a unit of development. But for sometime in future, women will continue to be *one* of the most *vulnerable members* of the family. Hence, the economic emancipation of the family with specific attention to women, education of children and family planning will constitute the three major operational aspects of the family centered poverty alleviation strategy". (para 27.15).

"Separate cells have a limited role. It is more important to create a general awareness and understanding of the problems of women's employment in all the top policy and decision making and executive personel." (para 27.17).

"The statistical data of physical achievement in beneficiary-oriented programmes will have to be collected sex-wise. The implementation of programmes would be reviewed from time to time". (para 27.18).

"Areas and sectors where women's employment is either low or on the decline would be identified and corrective measures initiated to promote additional avenues for employment. Effort would be made to offer larger employment for them in the schemes for public distribution system, rural godowns, Operation Flood II, Dairy Development and social forestry and in armed forces. Modernisation of traditional occupations of women such as spinning and weaving, match, making, coir, cashew, rural marketing, agriculture, animal husbandry and fishery etc., would be selective and would include simultaneous development of skills for alternative employment for them." (para 27.32).

"Creches will have to be designed for regular establishments as well as for agricultural, construction and migrant labour families. In rural areas this would be linked up with the scheme of NREP." (para 27.33).

A most interesting table is given on page 428 giving labour force participation rates as well as unemployment amongst women as revealed by the NSSO 32nd Round (1977-78).

Unemployment Rate

This table shows that while the share of the illiterate women (perhaps coincident to the poorest assetless) is 88 per cent, the labour force participation rate is only 34 per cent. The comparative rates for men are 55 per cent and 68 per cent. Another interesting statistic is that the *unemployment rate* amongst women throughout the four categories of literacy is greater than men, increasing with education. For example the unemployment rate amongst illiterate rural women is 4 per cent compared to 0.6 per cent for men and 46 per cent amongst women matriculates compared to 13 per cent for men.

However as can be expected there is little reflection of the concerns and strategies expressed in Chapter 27, in the Chapter that handles employment (Chapter 13) or training in science and technology (Chapter 19) or in Chapter 8 on Plan Implementation, Monitoring and Evaluation or in Chapter 14 social infrastructure like minimum needs.

In the chapter on Employment and Manpower Planning, (Chapter 13) in the analysis of data though many categories are identified and emphasised of employed and unemployed, none of the striking features of unemployment among females especially, as it is given on page 428 as attachment to Chapter 27, is noted. What is constantly mentioned is that the female figures are not comparable because of definitional probems. Why not give the female figures showing the kind of phenomena as is done in Chapter 27 ?

For example while in para 27.33 the linking up the scheme with NREP is mentioned between pages 173 and 175 where NREP discusses benefits to the weaker sections (para 11.34), there is no special mention of the creches. It merely notes that "specific attention will also be paid to promoting women's participation sex-wise in this programme". While in para 27.8 the need for data is mentioned and in para 27.1 that women will be the most vulnerable within the family and therefore special attention will be given to them in poverty alleviation porgrammes, as well as in para 27·32 that areas and sectors where women's employment is either low or on the decline would be identified etc.,—there is no mention of any of these in the chapter on Plan Implementation, Monitoring and Evaluation. Its absence is particularly noted in para 8.12 Anti-poverty Programmes and 8.16 Monitoring of Implementation and in para 8.28 Programme Evaluation and para 8.32 Information System, Data Base for Planning.

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In Chapter 13 there is no reference of the concerns expressed in chapter 27 that training facility should be especially strengthened for female labour. Similarly in chapter 14 on Minimum Needs Programme or in the discussion of Minimum Needs under the different heads of Environment, Education or Health, Family Planning and Nutrition.

Concern and trategy

In short it has not been possible for the Plan to transfer the concern and strategy expressed in Chapter 27 into meaningful operational instrument whether in terms of budget or in terms of sectoral and institutional linkages.

Another striking feature of the 1980—85 Plan is the enhanced allocation to the Central Social Welfare Board. Allocations for both the condensed course for women and socio-economic programme have been doubled· The plan also says : "The programmes of the Central Social Welfare Board and those of individual developments will be functionally integrated so as to optimise the benefits from all programmes intended for women." (para 27.22). "There is lack of coordination between the State Governments and the State Social Welfare Boards in Programme Planning and Implementation." (para 28.17).

During the consultations with the Planning Commission in drafting the Plan a strong case had been made for using the network of the Central Social Welfare Board which ideally should have non-official representatives of voluntary organisations as an Advisory Committee at the State level and down to the District level since most of these persons would be representing some experience in delivery of development with special reference to women and children. It was felt that these councils could be set up by the Board with additional support from the Central Government for strengthening their capabilities. These local councils of women would be able to perform some of the roles, establish linkage of social inputs in district development programmes as well as bring women's voices and needs into programme and policy identification and design. These points are also not being spelt out in the Plan though a very important first step is mentioned, namely that there should be more connection and coordination between the State Directorate of Women's Welfare and the Social Welfare Advisory Board.

It is difficult to perform this task of putting women in the warp and weft of the Plan document. There have been many serious discussions within the country, as well as in the region and the globe to design the methodology, without necessarily making it look like a reservation policy.

A Pioneering Task

In formulating the 1980—85 Plan several consultations were held with specialists in the field of women's advancement. A challenge was thrown to spokeswomen for women, to examine the strategies, investments, structures, schemes in the various sectors and suggest other schemes, structures through which women's interests and roles can be safeguarded. Since this would be a pioneering and time consuming task, to scrutinise and comment on every sectoral plan outlay it could not be done in time for the 1980—85 plan. However, the Women & Development Division of Social Welfare Department has initiated these exercises in Karnataka and Madhya Pradesh. The detailed exercise of analysing the building up of a State Five Year Plan and intervening wherever it seems there is a case, formulating atleast re-designed annual plans through study and dialogue with departments, development delivery institutions and data collectors in the local level, would reveal it is hoped—what the issues are, where they were relevant and how to incorporate the relevant issues.

It is hoped that these exercises will provide an input into the next national five year plan—but that is a hope.

Beneficiary Oriented Planning

One of the techniques which have been used by planners for ensuring the reach of development benefits to "difficult" population groups is to design beneficiary oriented planning. A target population is identified and certain schemes are desgined which will only reach that particular population. Examples of this are : women and child welfare schemes, special housing or education schemes for scheduled castes, apart from economic programmes much as SFDA/MFAL.

Another technique which has been evolved to give a special push to "difficult to reach" groups is the sub-plan such as the tribal sub-plan. One hurdle which planning techniques attempting to fully incorporate women's needs and interests have not been able to overcome is to get this kind of budgetary provision or demarcated funding or demarcated qualified goals across the board into a plan document.

Why ? because women cannot be separated like for example tribals living in a particular geographical area, into a category which is different from say the employed|unemployed, the rural|the urban, the landlord| the landless and so on. The female population of India is as stratified and heterogenous and unequal as the rest of the population and whatever the 'target' of planning, whether it is based on caste, class, topography like hill area or performance like forward-backward, they would fall into it. Hence, when it comes to allocating funding within the plan for specially reaching women, the usual course is to add more maternity and child-care centres, more girl's hostels and balwadies, more creches and Mahila Mandal and nutrition programmes.

Which Women ?

If allocations are reserved on the basis of sex within economic, social and political programmes, the issue will always arise of "which women ?" and degenerate into controversies around reservation.

Time and time again it is said that within the existing framework it is possible to reap more benefits to women if the operational mechanism is created, strengthened, made articulate. Outlays, it is said, are meant to reach men and women—so the task is to strengthen the ability of women to utilise, in which case the plan need not be modified.

However, as studies and evaluations as often done by the PEO (Project Evaluation Organisation) of the Planning Commission and by Universities and other academic institutions have already revealed, no development input is ever neutral across class and caste, those who have the capacity to seize the new opportunity rise faster than before. So gaps increase. The case of women is a graphic and poignant illustration of the biased impact of well intentioned development. The plea is if the *signals* and risks are taken in advance, development need not be an *enemy*.

Safeguards

Safeguarding women and their interest in a sectoral development programme is a matter of perceiving the difference, and taking steps to accommodate its consequences. The critical difference between males and females whether young or old binges around access. Access is so much a function of mobility, which in turn is a function of biology. A young girl is immobilised because if she travels along whether it is to school or to shop or to participate in meetings, she can be molested, raped, defamed, ruined. A mother of young children cannot move about except at great sacrifice in terms of leaving children to neglect or carrying them to work also adding to their neglect, and certainly cannot stay for meetings or training. Yet without access to services to opportunity, to knowledge, to institutions which discuss and decide, women will not only remain dependent but deprived.

It is natural to perceive the family as a homogeneous unit, where each member provides security to the other and thus even if there is dependence of women on the man, there should be no deprivation but complementarity. Unfortunately culture and tradition, biology as well as economic stress has tended to generate disparity between males and females *within* the family, in the utilisation of the benefits of development. It is not the *fault* of the men of the family. But it is fault of development that it has not designed itself to improve the access of those who are less easy to reach so that they may not be deprived.

It is the responsibility of the planning machinery to overcome this disability of the family and capture the needs of women and children especially female children, amongst the poor, so that the burden of their neglect is not put on the family. This is access planning and seems to be necesary to integrate women into the plan, the development process.

Illustrations

Some illustrations are given below on the types of issues that arise, and the types of re-arrangements that seem necessary for "real" integration.

For example, a command area project (or any other area development project) is premised to be sex and class neutral. It irrigatess the fields and hence increases outputs and income. More intense labour utilisation, so more employment; more food, so more all round nutrition.

There are all the known issues of inequality generated by farm size, relative advantage between classes, castes quality of land, location etc. There is also some debate whether irrigation always leads to a cropping pattern that increases utilisation of labour increase in mandays of employment. Certain crops|certain varieties of seed, use the same heads of labour but in short intense spells and others extensively. There are issues related to hiring systems, conditions of work which have begun to question the more irrigation more employment hypothesis—and ask whose employment ? at what human cost ?

Within this there are unequal benefits to males and females—both as agricultural labourers as well as domestic workers. At the economic level irrigation, if it leads to substitution of a cash crop for a subsistance crop, threatens to remove women's access to actual food grains and hences has often led to a drop in family nutrition levels.

Again change in technology of agriculture changes demand for labour not only in the aggregate but on the basis of sex. Tasks in Indian agriculture are demarcated according to sex. Ploughing, digging—male; transplanting, weeding, cutting grass—female and so on, varying for different crops.

For example, if irrigation brings with it other changes like weedicides, the employment as weed pickers will be loss only of females.

If a new variety of cotton is introduced which makes the hand picking of seeds from the cotton pods unnecessary then it would be only the women to lose employment.

Mechanisation

It is known that mechanisation of agriculture displaces both males and females, however, again there is also a female specific or sex specific dislocation because of the sex specificity of task. For example recently the machine that was to be imported by the Indian Tobacco Company in Andhra would displace only women as they were concentrating in that process. Similarly in Indonesia a cigarette rolling machine to be imported from Sweden displaced only women. Machanisation can accompany improved agriculture associated with irrigation.

Coming to the non-economic aspect of irrigation water has also to be used for washing and drinking. Women are the main activists in these tasks which are associated with household chores.

It is well known that irrigation water is almost invariably also picked up for domestic use. How often does this aspect of irrigation benefit get perceived in the design such that women are given some support ? The current Sixth Five Year (1980—85) Plan has budgetted Rs. 11,114.9 crores to be spent on irrigation in the next 5 years. Similarly 3307.80 crores have been budgetted for drinking water supply and sanitation for the same period. If we perceive water from the point of view of women another rationale will follow.

Firstly in mapping out the agricultural production plan as part of the irrigation plan, some scrutiny may be made to see the impact of women both in terms of employment, household, access to nutrition, access to water. In designing drinking water location outlet, wherever possible there should be an obligation and budgetary provision to derive from it a satisfactory water outlet—some not purified when it is for washing of animal and some purified for drinking. The 3308 crores could be used only when there is no irrigation.

Another illustration can be taken from the NREP for which Rs. 3000 crores have been budgetted in the next 5 years.

NREP

Two examples of the implementation of the NREP are given by the MEGS in Maharashtra and the Employment Affirmation Scheme (ESA) in Karnataka. If the difference between male and female economic roles as well as non-economic roles is perceived and built into the NREP then the following changes would be required.

It cannot be a programme limited to what are called the peak and lean agricultural seasons in the respective areas. The difference in task as mentioned earlier implies that the demand for female labour does not coincide with the demand for male labour. They follow each other. Further at no time even in the peak season is there enough demand for female labour to mop up those females seeking work (MEGS). Whatever little data is avilable supports this view.

Looking at the sex ratio both in Maharashtra and Karnataka of registered workers, women dominate, showing the great pressure for employment and income faced by women from these social classes. Therefore sites may have to be kept opened throughout the year in some areas.

Certain schemes may have to be designed so that they are annual and are associated with women's needs and skills. For example serving of cooked food, running of first rate creches, balwadies and shelters, packaging of food, development of nurseries, processing of forest products, preparation of grain which would later go into distribution. In other words there may have to be a shelf of "female only" schemes to keep the women employed while the men are absorbed in the agricultural season in earning higher wages.

Male-Female Ratio

There may also have to be some relaxation of PWD norms on male-female ratios for certain jobs. For example for building canal or desilting a tank or making a bund—most PWD personnel have a prefixed notion of light and heavy work which they divide between males and females. If the availability of one gender of labour is greater than this proportion, they would have to be kept waiting or let go for lack of the other.

In Maharashtra very many women reported that when they asked to be registered, they were asked to go back and bring a gang of the right mix of males and females. One case was reported wherein all female gang was allowed to work and that was because of the insistence of some strong women.

It would not be enough to say that these reforms should be incorporated by the States. That is upto the social welfare, nutrition and other departments to ensure that the services are supplied to the beneficiaries and that this programme is only taking care of the economic aspect. This would again leave women where they are

This quality would have to be included into the design and budget of the NREP. In the NREP guideline there may be a condition that a certain percentage of the budget should go for providing the services to female workers. Or it may be necessary to expand the size of the budget. It may be necessary to change the staffing pattern and include many more social workers. It may be necessary to invest in retraining of engineers. It may be necessary to put the Mahila Mandal programme into the NREP with special financial support that wherever there are women workers there should be women institutions to serve them whether as mothers or as adults or as workers. These are possibilities but they cannot be left to operational phase in the State to be perceived. They should be perceived by the planners at the national level themselves

A Useful Package for Women

MNP could be said to be the most useful package for women. Its components include Elementary Education, Rural Health, Rural Water Supply, Rural Roads, Rural Electrification, Housing assistance to landless labourers, Environmental improvement and nutrition. However, while the responsibility for generating these services is being put on local development institutions such as the panchayat there is no incorporation of women's institutions or women's perceptions. A careful scrutiny of the users of MNP specially if the intention is to overcome womens' unequal access to social benefits, might have suggested that the budget on this package should be in the hands of a Mahila Mandal—to be created if it did not exist. The same institutions could run an EAS programme or an NREP programme and so on.

These illustrations have been deliberately provided from different type of schemes and projects. Similar inroads can be made into the science and technology if not the industry, energy and other schemes.

Identifying the Poorest Women

One important first condition that has to be explicity stated in our kind of country is to clearly and unqualifiedly identify women from the poorest, social and economic classes as the focus of this planning; take note almost only of their concerns, needs, difficulties. Once this is clearly stated then the usual debate that women are homogenous is nullified.

The next point would be to specify|identify the abilities and disabilities of these women—against the stated goal of an improved standard and quality of life. Each project whatever it is, however remote it looks from people, should have a scrutiny for direct and indirect effects on women, within the poor, the scheduled castes, the tribes, the areas.

As has been said earlier, targetting women as a sub-set of beneficiaries in economic programmes, comprehending women's needs as part of beneficiary oriented programme, linking institutions' budgetary heads, structures in such a way that women's disabilities are reduced requires a great deal more back room exercise to be fitted into the existing methodology of planning. This has yet to be done and therefore it cannot be made into a fair critic of this particular plan as it would be a critic of all Indian plans.

Better Deal

The real question of designing procedures and processes of planning to make development less unjust lies outside this paper and is yet to be done, not only for women but for the population. But within the existing framework and cluttered pipelines, if women have to be given a better deal it still requires far greater effort on the part of planners and those who interact on behalf of women—than a chapter in the Plan, and an expanded budget in women's welfare.

Yet unless and until these specifications are built into the subject chapters, the national Plan which becomes the blueprint for action not only of centrally sponsored and centrally funded schemes but for State planning exercises could not bring to the perception of the subject specific ministry, departments and corporations—the very perception, that is so sharply and sympathetically laid out, in Chapter 27 □

Welfare of the Family and the Nation

J. L. Saaz

IN absolute terms the population of India showed a net increase of 136 millions during the 1971—81 decade, from 548 million in 1971 it increased to 684 million in 1981. At the time of independence our population was nearly 340 million. At the current rate of growth the present population will again double in 31 years. The problem of growing numbers is not only alarming but also puts a question mark on our very survival.

However, there is a ray of hope in this otherwise dismal demographic situation. The decadal growth rate which was constantly on the increase in the previous three decades—13.31 per cent in 1941-51 decade, 21.51 per cent in 1951-61 decade and 24.80 per cent in 1961-71—has been stabilised. In fact, the growth rate during the 1971-81 decade registred a slight decline of .05 per cent. It is estimated that during the last decade, Family Welfare Programme prevented 37 million births. But for this our population in March 1981 could have been of the order of 713 millions and with a decadal growth rate of 30 per cent. During the 1961-71 decade only 8 States/Union Territories showed decline in decadal growth rate while the number of such States/Union Territories has increased to 19 during the 1971-81 decade.

Some economically backward areas with low literacy rate and a tradition-bound social structure have also shown a considerable decline in fertility. All these are hopeful trends in our all-out fight against growing numbers which we are determined to win by making Family Planning a broad-based people's movement through purposeful and simultaneous action on many fronts.

Family Welfare

As the Prime Minister put it "our aim is not merely to curb the growth of population but to have happier and healthier families which, in our circumstances, means smaller families". In keeping with this objective which treats the family as the basic unit of development and regards family welfare as an essential input in it, efforts are being made to revitalise family planning programme. The programme is being integrated more fully with maternal and child health care services. It is being treated as a vital part of the overall health strategy which, on one hand, seeks to make greater, direct and indirect, investment in the health of the people and on the other, offers to them facilities which can help them in keeping their family size small. In the long term perspective the goal is to make it a part of the nation's cultural ethos to make the small family norm a way of life.

The Sixth Five Year Plan frame-work states that it should be the aim of our population policy to reduce the net reproduction rate to one by 1996. This will require reduction of the current birth rate to about 21 per thousand population from the existing about 36 per thousand population and a reduction in the current death rate to about 9 per thousand population from the existing about 15 per thousand population. During the Sixth Plan period (1980-85) it is proposed to bring down the birth rate to about 33 per thousand population. This is sought to be done by bringing 36.5 per cent of the eligible couples under effective contraceptive coverage by the end of 1985.

Rs. 1010 crore have been provided for this programme during the Sixth Plan. Rs. 140 crore were provided during 1980-81 while Rs. 155 crores have been earmarked during 1981-82.

The programme is implemented through the State Governments local bodies and voluntary organisations for which cent per cent Central assistance is provided. In the rural areas, the programme is implemented through a net-work of 5,500 Primary Health Centres and 50,000 sub-centres.

Infrastructure

With the Government's decision to provide services and essential infrastructure to reach the poorest sections, the Health and Family Planning infrastructure has been reshaped and redesigned to make the delivery system more effective and to ensure participation and involvement of the people. Accordingly, the primary health care, family planning and maternal and child health (MCH) services are being delivered as a package.

At the village level, a Village Health Guide selected by the community is being trained for this purpose. His main function would be towards educating the community and delivery of basic services with regard to family planning, MCH, nutrition, immunisation and control of communicable dieseases. About 1.7 lakh Health Guides have been trained and are already functioning. It is proposed to train additional 2.2 lakh Guides during the 6th Five Year Plan with the ultimate objective to have one Health Guide for every 1,000 population for every village. The *Dais* (traditional midwives) training programme has also been intensified and over 2.5 lakh *dais* have been trained during the last 5 years. It is proposed to train at least one dai from every village during the 6th Plan period with the ultimate objective to train all the practising *dais* in the country.

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The most peripheral static unit for the delivery of services is a sub-centre with one male and one female worker. At present a sub-centre covers a population of 5-10 thousand. In view of the importance of the sub-centres for maternal and child health care and spreading the message of small family norm, high priority is being given during the current Plan period to increase their number. It is proposed to establish 40,000 new sub-centres (in addition to about 50,000 already functioning) during the Sixth Plan. This would provide a coverage of one sub-centre for 5,000 rural population in non-tribal areas and one per 3,000 rural population in tribal and hilly areas. In this way 74 per cent of the population is proposed to be covered during the 6th Plan. In addition, it is also proposed to involve a large number of rural dispensaries in the delivery of health and family planning package by providing additional inputs.

Post Partum Scheme

One of the more successful components of the family welfare programme is the Post Partum Scheme. It is hospital-based and maternity-oriented. At the time of delivery, a woman who has completed her normal family size generally recognises the importance of family planning more than at any other time. The programme offers the necessary facilities to such women. Till recently the programme covered 524 hospitals in the country—all at the district level or above. In 1980-81, it was, for the first time, extended to 50 sub-district hospitals. During the Sixth Plan, it will be extended to 300 sub-district hospitals.

The Programme of Medical Termination of Pregnancy through well trained doctors in well-equipped/approved hospitals is essentially a health care measure. But, in a way, it supplements the family welfare programme as it provides for legalised abortion in cases of contraceptive failures also. A good proportion of the acceptors of abortion agree to adopt some form of contraception like sterilisation, IUD etc. Since 1972, a total of 1.92 million terminations have been done. 166 hospitals in the country have been approved to provide training in medical termination of pregnancy techniques to doctors drawn from various district hospitals and primary health centres.

F.P.—A Way of Life

The number of eligible couples in India was estimated at 117 million in June 1981. Amongst the acceptors of the programme, the most popular method is sterilisation; 33.4 million persons have opted for it since the beginning of the programme. IUD has been accepted by 8.75 million women. A massive effort is now on to promote conventional contraceptives, particularly condom. The present users of conventional contraceptives approximate 3.7 million. Taking into account attrition caused by age, mortality, discontinuation of IUD and other factors, the number of couples currently practising family planning approximates 25.7 million. These couples constitute 22 per cent of the total number of couples in the eligible age group. The important thing to note today is the fact that it is the younger group amongst the people that is coming forward increasingly for adoption of family planning as a way of life.

The demographic situation, though quite serious, is not out of hand. The 20-year perspective plan for health aims, *inter alia*, at reducing the birth rate, the death rate and the infant mortality rate from the present 36, 15 and 125 to 21, 9 and 60 per thousand respectively, by the turn of the century. The population growth rate by then should go down to 1.2 per cent. To realise this objective it is absolutely essential to step up multi-directional efforts which should include a broad-based mass education and motivation programme through mass media etc. Voluntary organisations, democratic institutions—panchayats, Zila parishads, legislatures, representative organisations of workers and peasants and cooperatives should be fully involved to narrow the gap between awareness and acceptance. The war against growing numbers has ultimately to be won in the minds of the people.

An Examplary Teacher

THE Headmaster of Ashram High School, Kamsar, Shri Bhakta Prasad Nanda, is a friend, philosopher and guide for the poor innocent and ignorant Adivasis of Kamsar, a small village of Sambalpur District in Orissa.

Born in 1943 and educated in Sambalpur town for B.A., B.Ed., Shri Nanda took up teaching profesion in Tribal Area schools to fulfil his mission of enlightening poor masses. To keep himself free from family encumbrances he never wanted to marry. But he was prevailed upon to marry and he married Nirupama a well qualified girl, an expert in culinary art and tailoring and embroidery works but deaf and dumb. He did not take any dowry. He did not succumb to the advice given by friends and relatives that his children might be deaf and dumb. His two children (a boy and a girl) both are normal and he leads a contented life. He is training his wife how to speak.

Digambar Satpathy
Field Publicity Officer,
Sambalpur

Special Article

The Labour Scene

S. K. Sangal*

TRADE UNION movement in India has a unique history and character. It started with the Swadeshi movement as a part of the struggle for freedom from the foreign rule. The movement was guided by the top-ranking leaders since the very beginning.

However, this character changed soon after achieving independence For the industrial labour it became a fight for fair wages and existence. In this move the various political parties started their labour wings and thus the entire movement became politically motivated without caring what net effect it will have on the industrial climate and economy of the country.

Time and again industrial leaders have been demanding that the government must consider imposing moratorium on strikes and lockouts. This demand was universal and the private sector entrepreneurs were joined by the public sector management on this issue.

Although India is a socialist republic, yet the pattern of mixed economy does not favour the consumer or those who work for this economy. As in green revolution the benefits did not percolate to the agricultural labour, the industrial labour could not be assured a living wage even after three decades of industrialisation. The rich have become richer and the poor have no place in the society.

It was in this light that the Indian National Trade Union Congress at its fourth conference of public sector unions held at Bombay recently stated that it is committed to strive to bring industry under the national ownership and control for the expeditious realisation of its objective of the establishment of a society free from hindrance in the way of all round progress of its individual members, a society free from social, political or economic exploitation, a society free from anti-social concentration of power in any form.

With this constitutional commitment to the philosophy and growth of public sector, the INTUC endorsed the two Industrial Policy Resolutions of the Government of India, as enunciated by our late Prime Minister, Pandit Jawaharlal Nehru in 1945 and 1956 by which the public sector was assigned a dominant position in the country's economic and social development. The INTUC wholeheartedly welcomed the progressive inclusion of more and more industries in the public sector and has been consistently striving to ensure the success of these enterprises.

Failure of Nationalised Institution

The nationalisation of life insurance and the banking industry and later general insurance were important milestones in the country's march towards its socialist objectives. However, it is regrettable that these nationalised financial institutions have failed the country in the realisation of the objectives of nationalisation. The reasons for this dismal performance are manifold and while the managements of these financial institutions are largely to be blamed for this failure, the trade unions functioning in these establishments too are also not free from blame.

Apart from providing additional employment through expansion of public sector, the government has also the responsibility of maintaining the existing level of employment and production. A number of industrial units have fallen sick because of inefficient and/or mismanagement resulting in closures. The government then had to take over these sick units and thus come to the rescue of workers by ensuring continuity of employment and to the rescue of the community by ensuring continuity of supply of goods and services produced by these units.

A concrete example in this regard is setting up of the National Textile Corporation which has taken over about 110 textile mills in the country closed due to sickness on account of mismanagement. Today, the NTC alone employes more than 1,60,000 workers. The government is however, reported to have decided not to take over sick units any further. Such a blanket decision will not be in the interest of the country.

It is realised that the success of the public sector undertakings cannot be measured by a mere profit index. Most of the public sector undertakings have administered prices for their products. Again, several public sector undertakings are in the core sector providing the necessary infrastructure for the other industries in the country and if these public sector units in the infrastructure industry embark on showing profits by putting up the prices, cost of production in the other industries might have to go up. Nevertheless, the huge investment in the pubic sector should yield satisfactory return and prices of all commodities manufactured in the public sector must ensure a reasonable return on the capital employed. As of now, against an aggregate loss of Rs. 40 crores in 1978-79, there were losses of Rs. 74 crores in 1979-80. This picture must change.

The proposed investment in the public sector during the Sixth Plan period is Rs. 97,500 crores and it is imperative that this colossal investment has to be made fully productive and towards this end steps must be taken to ensure considerable improvement in the performance of all the undertakings in the sector.

There can be no two opinions that the public sector has been by and large successful in fullfilling its social objectives like development of backward regions, generation of additional employment and protection of the employment already existing. But in the context of its poor corporate performance, there is the imperative need for a complete reorientation in our approach to the management of the various public enterprises. Considering the huge investment of Rs. 97,500 crores to be made during the Sixth Plan period the nation's stake in ensuring the all round success of the public sector has gone very high.

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Absence of an Intellectual Commitment

There is complete absence of an intellectual commitment to the philosophy of the public sector among most of the existing management personnel. The top executives are either drawn from the administrative services or large private sector establishments. The top executives from the administrative services generally evince no interest in the performance of the unit they are in charge of and conduct themselves as birds of passage. "They have come from somewhere and are on their way to somewhere else." They treat the public sector units as transit camps on their way to getting posted elsewhere on promotion. Their approach to various disciplines of management is bureaucratic and not results-oriented.

Those recruited from the private sector are devoid of any awareness of the philosophy of or the need for public sector. They are perhaps engaged only in building up contacts for improving their future. Many of them continue to owe their loyalty to the private sector which views the public sector as a rival. Besides, they import private sector practices into the public sector.

A few top executives drawn from the police or armed forces or retired persons are inducted to top positions in the public sector units and they find themselves in strange waters. The foremost task, therefore is to have a thorough overhaul of the present managerial personnel and introduce persons with commitment and competency to evolve a new culture.

Due to a complete absence of commitment to the philosophy of the public sector among the executives there has been no success in the corporate enterprises, which only underscores the need for imparting education to the management personnel on the philosophy and role of the public sector in a developing economy like ours. The INTUC has appealed to the government to take immediate steps for the establishment of a National School of Public Sector Management. There may be in-house training programmes in several large public sector units, but they deal largely with the problems at the micro level and do not deal with the basic culture. The syllabi of this National School of Public Sector Management, it has been suggested, should be such as to inject in the trainees a new management culture so as to regulate their approach and conduct when they are absorbed in a unit after the training. Even those presently functioning in different public sector units should be made to undergo a reorientation course in this school provided they are found to be adaptable.

Bureaucratic Apathy

Because of all this bureaucratic attitude there has been a marked deterioration in the industrial relations in the public sector as a whole. Indiscipline, hooliganism, vandalism and violence seem to have been crept into industrial relations of late in some of the units. The approach to industrial relations in the public sector remains the same as in the private sector that nurtures only "mutual mistrust". Some of the managements in the public sector are also responsible for the rapid deterioration in this regard. In an attempt to cover their own failures, these managements have been extending encouragement to those trade unions who indulge in avoidable direct actions and agitations to the detriment of production. Unless immediate steps are taken to put an end to this unhealthy trend, the situation might turn to be disastrous.

Some of the trade unions are also partly responsible for this rapid deterioration in industrial relations. The rivalry arising out of multiplicity of unions is harming the public sector as a whole. To add to this is the sinister attempts of opposition parties to fight their political battle on the trade union front. This development is posing a challenge to constructive and responsible trade unionism.

It is being stated that when Marx propounded his theory there were no laws regulating trade unions and protection of labour. Today we have a number of laws to protect and promote the interests of labour, regulate industrial relations and provide old age benefits. These was no public sector in the days when Marx propounded his theory. Indeed the private sector was having a field day of "unbridled exploitation." But now the situation has radically changed. Not only that. Many could never have dreamt of participative management. When the labour's right to participate in management is not merely recognised orally but enshrined in the Constitution, itself working class in India has travelled a long way from the days of Marx. Therefore, attempts to sell Marxism to the working class of India amounts to taking them several decades back. With the radical changes as aforesaid, relations between the labour and management more particularly in the public sector, have to be transformed from one of conflict to one of cooperation. Participative management and Marxism cannot go together for one believes in conflict and the other believes in cooperation. On the other hand, philosophy of participative management harmonises with Gandhian principle of trusteeship or industrial democracy. Therefore there is need for a radical change in the basic philosophy guiding industrial relations in the public as well as private sector.

Strikes

Very often strikes in the ublic sector are politically motivated. Labour in public sector is being utilised to fight political battles. This section of trade union movement strives to convert the public sector unions as an anti-government sector. There is a great responsibility on the unions operating in the public sector to realise that more than half of the population is below the poverty line and it is the successful working of the public sector that can provide the answer to the expectaions of the vulnerable sections of our population.

Strike is only a means for the settlement of disputes. It is the last weapon in the armoury of the trade unions to be used only after exhausting all other peaceful and constitutional means. However there is another method of expeditiously solving the disputes fairly and promptly and that is voluntary arbitration which is superior and more civilised. The recent strike in Bangalore-based public sector units that had caused a considerable loss to the workers and huge loss to the country's production is a case, for instance. The strike had to be ultimtelly called off after 80 days with no benefit to the workmen. If only the leaders of the Joint Action Front had accepted voluntary arbitration as suggested by the INTUC to which the government had agreed this strike could have been ended much earlier and the workers might have won their case.

One Industry, One Union

One union in one industry is not a complete slogan. What is needed is one good union in one industry. The controversy whether a union should be recognised on the basis of result found through secret ballot or verification of membership has missed the real point. What is required is not mere numbers for numbers without quality will not deliver the goods. There is therefore need for giving greater stress on quality. In other words, just as we have quality control in all other fields we should have some quality control for trade unions also. It is high time for the people of the country to decide as to what sort of trade unions the country needs and ensure quality among trade unions so that choice can be made from among the most representative trade unions who pass the qualification test. This will also reduce the mischief from multiplicity of trade unions.

Inflation, high prices, growing unemployment and poverty in the country demand that the national efforts should be directed towards ensuring that the wheels of production are kept running uninterrupted particularly in the core sector industries like coal, steel, power, oil, railways and shipping, cement and fertilizers.

In this grave situation it is the duty of the working class to exhibit a high degree of patriotism and ensure better discipline, increase in production and improvement in productivity. There is also the need for a task force that will ensure uninterrupted production and supply of quality goods at fair prices.

It is obvious that the trade union movement should keep pace with the growth of the public sector. Such expansion of the trade union movement must not be haphazard. There is need for a continuous inflow of trained cadre to man positions in trade unions so that not only new blood is pumped into the movement but also necessary expertise is made available to the unions right from the start.

New Look to Industrial Disputes Act

The Centre recently came out with the Essential Services Maintenance Ordinance., The central trade unions are opposing it without realising that all the provisions in the ordinance already existed in the Industrial Disputes Act. What Government has done is that it has given them a new look so that they have some psychological impact on the minds of workers.

To understand the need for such a measure we must know the industrial relations situation during the last few years. The following table shows the number of disputes (strikes and lockouts) and the value of production loss :

Strikes and Loss of Production

Year	No. of disputes	Value of production loss (Rs. in crores)
1976	1,459	92.31
1977	3,117	284.48
1978	3,187	285.32
1979	3,048	443.02
1980	2,191	118.47

It would be observed that during the last year of the previous Congress (I) Government as low as 1,459 disputes had occured in 1976 involving a loss of Rs. 92.31 crores only. But in 1977, the very first year of the Janata rule, they shot up three-fold and two years later as many as 3,048 disputes occurred.

Launching Bold Economic Measures

As is known, the government has recently launched a series of bold economic measures to contain inflation and to fight the evils of hoarding, black-marketing and profiteering. Shortages of essential goods have to be removed and price rise checked. All these steps will benefit the working class as much as others. But for achieving these goals, maintenance of industrial peace is absolutely essential, even if for a period of time, as otherwise any disruption in production process will only lead to further shortages and still higher inflation. Constant vigilance has to be maintained and the government cannot take any risk.

The entire process of collective bargaining has been vitiated by the deliberate politicising of labour management issues. Whether it be for the manufacturing or the services sectors, there has been increasing resort to go slow tactics, intimidation of the many by an aggressive few, and in several cases the manifestation of open thuggery to brow-beat others. There are reports of fierce inter-union rivalaries, millitant agitations, strikes on frivolous grounds, assaults and gheraos. The deteriorating trend of indiscipline and unrest is reflected in the relative percentge of violence in relation to number of agitations—11.6 in 1977, 12.6 in 1978, 15.7 in 1979 and 18.3 in the first five months of 1981.

Some of the most important industrial belts in the country have been witness to militant unionism and violence. In Bombay-Thane-Belapur industrial belt, there has been perpetual tension, sometimes even violence, since the middle of 1980, resulting in a huge loss of production and tremendous suffering to the workers. No less than 16 major clashes took place last year.

Rural Workers

The 32nd session of the labour ministers' conference held in August last has admitted that benefits of various statutory and non-statutory schemes have not reached the workers in rural areas due primarily to the lack of organisation and awareness among the rural workers.

It has also been observed that trade union activities have not made much of an impact in rural areas except in a few pockets and areas. Realising the fact that the social gains of economic development can be secured by the large masses of rural workers only if they are properly organised and educated, the sub-committee on rural workers organisation and education constituted by the Central Standing Committee on rural unorganised labour has interalia recommended the appointment of honorary organisers for organising the rural workers.

The sub-committee had also pointed out that in some States like West Bengal and Kerala, the work of organising the rural poor had already made considerable headway whereas that was not the position in other States. In view of this, it is proposed that the scheme for appointing honorary orgnisers may be tried in Uttar Pradesh, Bihar, Andhra Pradesh, Orissa, Rajasthan and Madhya Pradesh. During the current finncial year, it is proposed to introduce a Plan scheme in 350 blocks of the aforesaid six States. The scheme will be implemented by the State governments.

The function of the organisers will broadly be to educate the workers on their rights and duties and stress the value of organisation, to help them to organise themselves into cooperatives, trade unions, or other forms of organisation as may be considered necessary.

It would be open to all desirous of assoociating themselves with the work of organising rural workers to make applications to the block development officers for selection. Names may also be sponsored by the block panchyat samitics, workers' organisations, wherever they exist, and other organisations engaged in rural welfare, social or educational work. Adult literacy workers would also be considered for appointment as honorary organisers. The appointments will intially be up to the end of February, 1982.

Training Rural Educators

The Central Board for Workers' Education would train the organisers. The Board, it may be mentioned, already has a scheme for training rural educators. The Board would also be requested to meet the cost of boarding as well as lodging of the organisers during the period of their training (about 2 months.)

It is proposed that an all inclusive honoroarium of Rs. 200 p.m. be paid to the honorary organisers. In order to enable them to move around in connection with their work, they may also be paid a fixed conveyance alowance of Rs. 50 p.m. For drawing this allowance they will maintain tour diaries, which will be open for inspection by the block development officer.

Distribution of blocks for appointment of honorary organisers :

Sl. No.	Name of the State	No of blocks to be covered under the Scheme
1	Andhra Pradesh	40
2	Bihar	75
3	Madhya Pradesh	55
4	Orissa	40
5.	Rajasthan	30
6	Uttar Pradesh	110
		350

For administrative purpose, the organisers will be attached to the respective block development officers who will also be disbursing their honorarium on behalf of the State governments. The state governments may claim reimbursement of the honorarium paid to the organisers after incurring the expenditure and on the basis of duly certified acquittance rolls. They will be required to give complete information regarding the name, qualifications, background and the date of appointment of the organiser and the area in which he is deployed. Progress reports may also be introduced in course of time.

Scheme to Organise Rural Workers

THE Government has drawn up a scheme or organisation of rural workers during the Sixth Five Year Plan. The proposed scheme, to begin with, will be tried through honorary organisers in the States of Uttar Pradesh, Bihar, Andhra Pradesh, Orissa, Rajasthan and Madhya Pradesh. About 350 blocks will be selected in these States for appointment of honorary organisers.

The Central Board of Workers Education will train these organisers who in turn will educate them on their rights and duties and help them to organise into cooperatives, trade unions or other forms of organisations. These organisers will be attached to the respective Block Development Officer and will draw an honorarium of Rs. 200 per month.

ILO and the Disabled

SHRI Narayan Datt Tiwari, Minister for Labour and Planning called upon the International Labour Organisation recently in Geneva to bring about change in its standard setting activities as they did not have much relevance to the situation obtaining in the developing countries. He added that these countries had joined ILO recently and were finding it difficult to ratify them or implement them.

Addressing the 67th session of International Labour Conference, Shri Tiwari said that to deal with complex problem of the rehabilitation of physically handicapped, the international organisations like ILO should help the member countries as it required a well coordinated human approach.

Shri Tiwari pointed out that the severity and extensiveness of disability was much larger in developing countries. In this context the technical cooperation efforts of ILO had to be further diversified and intensified.

Shri Tiwari emphasised the need for the early establishment of a regional rural training centre which should be modelled after the International Centre for Advanced Technical Training.

For the Success of the Sixth Plan

S. B. Chavan*

REMOVAL of poverty and unemployment and attainment of self-reliance havebeen the basic goals of planned development and they remain so for the Sixth Plan as well. In order to move forward towards these objectives, it is essential (although, not sufficient), to achieve a high rate of growth of national income. The Plan thus aims at a growth rate of 5.2 per cent per annum. This is not an ambitious target, especially since 1979-80—the starting point—was a year of low output. But it still requires assiduous efforts to utilise excess capacity in the system and to build new productive capacities in industry as well as agriculture, in power and in transport so as to sustain the momentum of development in the years to come beyond the present Plan period. We think this effort can be made. Indeed, in the first eighteen months since this Government came to power, such an effort has been made. As a result—no doubt helped by good monsoons—the growth rate last year was 7 per cent and is likely to be 4.5 per cent or so this year. Thus the average for the first two years of the Plan may well come to 6 per cent—which is higher than the target set in the Plan. An essential condition for the attainment of our objectives is thus being met.

In order to achieve the target growth rate of 5.2 per cent, both agriculture and industry will have to perform better than in the past. In terms of gross value added, the Plan envisages an average growth rate of about 4 per cent for agriculture and about 7 per cent for mining and manufacturing. The realisation of these targets will require a substantial step up in investment as well as a considerable improvement in capacities which have already been created particularly in such critical sectors as irrigation, power, coal, petroleum, fertilisers, cement and railways. The Sixth Plan lays balanced emphasis on both these aspects.

Farm Front

The country is currently self-sufficient in foodgrains. However, there are still gaps in such important areas as pulses and vegetable oilseeds. Agriculture being still the foundation of our economy, the 6th Plan contains a number of programmes designed to further strengthen the modernising impulses in agriculture, covering both food and cash crops. As part of the overall strategy, the area under irrigation is sought to be increased by nearly 15 million hectares over the Plan period. The consumption of chemical fertilisers is expected to go up from 5.26 million tonnes of nutrients in 1979-80 to 9.65 million tonnes in 1984-85. The institutional credit for agriculture and rural development will be more than doubled over the Plan period. The newly planned National Bank for Agriculture and Rural Development will act as a powerful agent for overcoming the weaknesses of the credit delivery systems, particularly in meeting the credit needs of small and marginal farmers and rural artisans. Apart from crop husbandry, considerable stress has been laid on the development of subsidiary occupations like animal husbandry, horticulture, fisheries, social and farm forestry. The dairy development programme alone is expected to benefit about 15 million families. It is the declared policy of the Government to provide remunerative prices for farm produce and to strengthen the infrastructure for marketing as well as post harvest technologies so as to ensure that farmers have an adequate incentive to produce more. In the strategy for integrated rural development in the 6th Plan, priority attention has been devoted to improving the income status and living conditions of small and marginal farmers, agricultural labourers, rural artisans, Scheduled Castes and Scheduled Tribes. National policies relating to land reforms covering implementation of ceiling laws, redistribution of surplus land, updating of land records, provision of house sites to the landless, and consolidation of holdings will be implemented on the basis of a time-bound programme.

However, growth is not all. We must ensure that the benefits of economic growth reach the masses and the poorest and the weaker sections are helped to improve their economic conditions. Removal of poverty is the most important objective of planning in India. Thus the Plan lays special emphasis on improving the quality of life of the people, particularly those who are economically and socially handicapped, both through provision of new employment opportunities including opportunities for training in new skills and through the minimum needs programme ; on strengthening the redistributive bias of public policies and services in favour of the poor and on a progressive reduction in regional inequalities. Specific programmes have been designed to attain these objectives. An effective implementation of these programmes will help to reduce very substantially the proportion of people still living below the poverty line.

More Employment

The Sixth Plan fully recognises the need for a rapid expansion of employment opportunities both in rural and urban areas. The increase in employment on the basis of standard person years will be 4.17 per cent per annum which is much higher than the rate of growth of labour force over the Plan period. The employment strategy of the 6th Plan lays emphasis on self-employment ventures both in agriculture, village and small industries and allied activities, and in non-farm occupation. Apart from a massive irrigation programme and a careful regulation of mechanisation so as to maximise the scope for labour absorption in agriculture, a number of specific employment oriented development programmes have been included in the 6th Plan. Thus the IRD programme which now stands extended to all the blocks in the country is expected to benefit

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*From the speech of the Planning Minister in Rajya Sabha on Sept. 9, while inaugurating discussion on the Sixth Five Year Plan.

15 million rural families over the Plan period. The programme is designed to provide a mix of technical assistance, subsidies and bank credit to the poorer sections in rural areas to find self employment in land based or other occupations. Similarly, the programmes for village and small industries (including khadi, handloom, sericulture and handicrafts) will benefit about 9 million persons. The National Rural Employment Programme which now covers all the blocks will add significantly to employment opportunities particularly for the landless in the rural areas. This programme which is designed to provide additional employment in rural areas, especially durnig the slack season for the construction of durable productive assets is expected to generate about 300—400 million mandays of employment per year during the Plan period. This programme will also help to reinforce the effectiveness of minimum wage legislation in rural areas. Under the National Scheme of Training Rural Youth for Self-employment 2 lakh rural youth would be trained every year to equip them for self-employment. Through various Plan programmes a wide variety of income earning occupations will be promoted for the benefit of Secheduled castes and Scheduled tribes. In order to promote growth of employment opportunities on a decentralised basis, District Manpower Planning and Employment Generation Council will be organised all over the country. These councils will pay special attention to the needs of educated unemployed as well as women. In order to reduce the burden of unemployment among the educated, efforts will be made to divert matriculates, who form the bulk of the educated unemployed, to non-clerical occupations and self-employment.

The Plan also emphasises the need to promote policies for controlling the growth of population through the acceptance of small family norm. The family planning programme has acquired a special urgency in view of the preliminary results of the 1981 Census which shows a larger population than earlier estimated. The Planning Commission is now engaged in a detailed examination of the implications of the Census results.

Social Services

The improvement in the quality of life requires, among other things, augmenting the provision of basic social services like education and health. This is a major objective of the Minimum Needs Programme which was first evolved in the 5th Plan. A provision of Rs. 5,807 crores has been made in the 6th Plan for this programme which has a significant role to play both in reducing poverty and in redistributing income and consumption in favour of the poor. Under the programme all the remaining problem villages excepting in some difficult areas like hilly and desert regions will be provided with safe drinking water. As regards elementary education, the enrolment ratio is to be raised to 95 per cent in the age group 6-11 and 50 per cent in the age group 11-14. All the remaining landless households will be provided house sites during the Plan period. Similarly, about 20,000 additional villages will be provided with rural roads and 46,464 villages will be covered by rural electrification. Under nutrition, apart from the existing mid-day school meals programme which covers 17.4 million children, 5 million children in 600 ICDS blocks and 5 lakh women will be covered by supplementary nutrition programme seeking to provide integrated services of feeding, health and welfare. There will be significant expansion in facilities for rural health : the number of community health volunteers wil go up from 1.4 lakhs at the beginning of the Plan to 3.6 lakhs at the end of the Plan. The programme for environmental improvement of urban slums will cover about 10 million additional population in slum areas.

The Plan also lays considerable emphasis on the development of hill areas and drought prone areas; on the Scheduled Caste Component of Plan for which for the first time a Central Additive of Rs. 600 crores is provided, and on the welfare of Scheduled Tribes and Backward Classes. Special attention is being given to the problems of the North Eastern Region and other backward areas.

For More Energy

Energy is the key to augmenting production in many fields : minor irrigation, large and small industries, mining and transport. Thus about 30 per cent of the Plan outlay will be spent on energy alone. The Plan seeks to raise the production of coal from 104 million tonnes in 1979-80 to 165 million tonnes in 1984-85. The generation of electricity is expected to go up from 112 billion KWH in 1979-80 to 191 billion KWH in 1984-85. More recent indicators suggest that production of crude oil in 1984-85 will be substantially in excess of the Plan target of 21.6 million tonnes. We must develop indigenous sources of oil in order to reduce our dependence on costly imports; and research effort in new and renewable sources of energy must be encouraged. The Sixth Plan makes provision for these.

Resources

The Sixth Plan visualises that the domestic savings will increase from 21.5 per cent of domestic product in 1979-80 to 24.5 per cent in 1984-85; that domestic investment will likewise go up from 21.8 per cent to 25.1 per cent. The difference between the two is small and represents inflow of savings from abroad, for example, through foreign assistance and borrowings. The step-up in savings and investment may look small; but it implies that as a nation nearly 34 per cent of *additional* incomes generated in the Plan will be diverted to savings. For a poor country this represents a not inconsiderable effort; but it will be our endeavour to ensure that the effort is made and that the burden is distributed equitably and falls mainly on shoulders capable of bearing it.

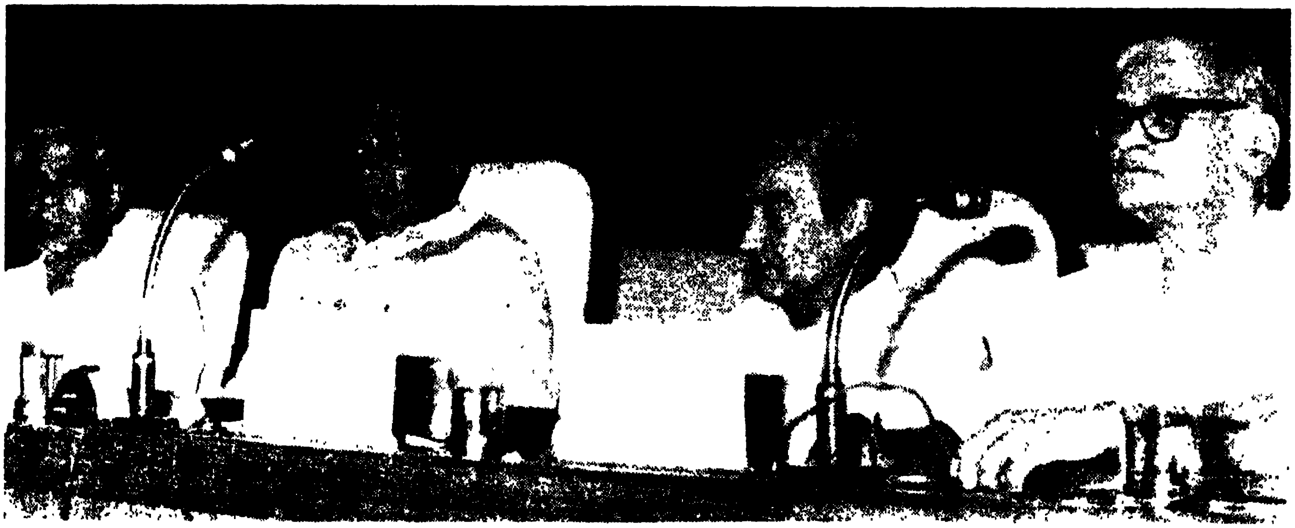
The Sixth Plan provides for mobilisation of Rs. 97,500 crores for the Public Sector Plan Outlay. Of this, investment proper (as distinct from current development outlay) will be Rs. 84,000 crores. In addition, private investment, in agriculture, industry, transport and other sectors, is estimated to amount to Rs. 74,710 crores. Thus the share of public sector will be 53 per cent of the total. The fulfilment of the public sector plan will require a massive effort at resources mobilisation by both the Centre and the States. At the same time, private investment will also need to be adequately supported through public financial institutions and banks. The Plan document suggests that subsidies need to be reduced and that public enterprises, in which the nation has invested huge sums, must be made to yield adequate returns on capital.

The scheme of financing the public sector plan has been so designed as to be non-inflationary in character. It calls for additional resource mobilisation of Rs. 21,302 crores by the Central and State Governments and their enterprises while deficit financing is proposed to be restricted to Rs. 5,000 crores. It has been realised that with rising prices and the consequent increase in project costs the real resource content of the Plan is likely to get eroded. To cope with this eventuality the Plan clearly visualises that if the prices rise, to maintain the investments in real terms at the levels postulated in the Plan additional resources beyond the amount stipulated in the Plan will have to be mobilised.

Effective measures to stabilise the price situation, therefore, constitute an integral element of the strategy of the Plan. The control of inflation and the generation of stable price expectation, it is recognised, are crucial for the successful implementation of the Plan. The implementation of the Plan on schedule and the realisation of targets in different sectors is also of basic importance for ensuring relative price stability.

A crucial element in the success of the Plan will be the adequacy of foreign exchange. Although our dependence on foreign savings is not large and the Plan projects only a small increase, this is based on the assumption that exports will grow at 9 per cent per annum and that in a number of areas we will carry forward the process of import substitutions, thus restraining overall import growth to no larger than 9 per cent per year. Self-reliance continues to be a major long term goal of Indian planning and its realisation depends on our ability both to increase our exports and to curb demand for non-essential imports.

The success of many of our programmes of development depends crucially on our ability to create the requisite organisation at the grass-roots level and to ensure active participation of the people, especially those intended to benefit from the programmes. Mobilising the enthusiasm of the people and giving it a purposeful direction is the main challenge facing us. ☐



Shri S. B. Chavan, Union Minister of Planning inaugurating the All India Training Conference Organised by the National Sample Survey Organisation in New Delhi on September 23, 1981

Industrial Dispersal

(*Continued from page* 3)

tions should be established in these areas in order to develop new skills among the local people and to employ them in the new industries.

The development of backward districts which constitute nearly three-fourths of the country's area, is vital for maintaining national unity and internal peace and for the removal of mass poverty. Industrial dispersal through ancillarisation can play a major role in this task. ☐

Integrated Rural Development : Need to Avoid Pitfalls

A. Ramakrishnan*

THE draft Sixth Plan proposes to reduce the number of people living below the poverty line from 48 per cent to 30 per cent. One of the main tools to be employed by the Government to tackle the rural poverty is the Integrated Rural Development Scheme which was started in 1978 on a pilot basis and has been extended to all the development blocks in the country. Side by side with this scheme also exist various target groups-oriented schemes for the rural poor, like the Tribal Sub-Plan, the special component plan for the Scheduled Castes, the modified area development authority, etc.

Most of the schemes adopted so far have not been able to make a dent on the rural poverty and at the most have ended up only touching the problems at the periphery. It is, therefore, necessary to avoid the pitfalls on the basis of the past experience so that I.R.D. Scheme does not suffer the same fate as its predecessors.

The special schemes for the improvement of the rural areas of two types : those which are of general use to the community, i.e. the area based schemes and second, the target oriented schemes, which concentrate on the individual beneficiaries and are intended to raise the economic status of the individuals by providing them with resources and skills at a subsidised cost and also linking up the same with institutional finance, market, etc. Since the results of the area based schemes are not particularly happy, much stress is now laid upon target group approach One of the main reasons for the failure of the area oriented schemes is that the benefits do not flow to the right persons. It is no doubt clear that the bulk of the rural poor in India today belong to one of the following categories : *(i)* Agricultural labour, *(ii)* Small cultivators owning up to 5 acres of dry land, (iii) Impoverished artisans.

Over the years, in the rural areas, many of the well-to-do farmers have resorted to partitioning of their holding mainly to corner the benefits flowing for the rural poor. Similarly, people who have other non-agricultural business also tend to become eligible beneficiaries by producing false income certificates.

Procedural Faults

The procedure in the Government offices has also worked against the interest of the rural poor who are usually living on daily earnings and do not have much reserve with them. A farmer has to make at least three or four trips before the application is sanctioned. Further, if there is a loan portion, he has to get the documents executed from the bank and also provide a guarantee or in some cases, he has to bear the non-subsidy portion in cash. Considering that the person lives at a distance of 30 to 40 Kms. from the block headquarters and spends a full day for one trip to the block office, it costs atleast Rs. 15 per trip to cover the transport expenditure and the personal expenditure. Besides he has to forgo his daily wages. So he spends not less than Rs. 60 to 80 to get his application cleared, if he is lucky. Further, he has to defray the expenses of the guarantor, who may not be readily available or may be unwilling to stand guarantee to the poor farmer with the result that he has to purchase the guarantee at a cost. Even though the Reserve Bank guidelines specify that surety may not be asked for loans upto Rs. 5,000|-, in practice banks do not sanction loans without sureties. Further, in a scheme like subsidy for digging a new well, the subsidy and loan are released in instalments Every time a certificate that the previous amount is fully utilised is to be produced to the satisfaction of the inspector of the bank and the farmer has to make more trips to the bank offices to get the Inspector to the village for release of further subsidy instalments. All these put a tremendous physical and financial strain on the individual beneficiaries and some times the cost of getting the subsidy may exceed the subsidy amount itself and thereby the facility is available to him at a rate higher than the market price. In the circumstances, only those persons, who visit the Panchayat Samiti offices regularly or who live close-by and can afford to visit the Panchayat Samiti Office regularly without wasting much of the resources, can get the benefit.

Further, it is not sure that even with all these efforts he may get the benefit since there are the local groups existing at the block level lobbying for a particular beneficiary. Leakages take place and subsequent mis-utilization including re-sale, transfer of inputs to bigger farmers, and diversion of the benefits, leaves the poor farmer high and dry without change in his economic status.

Another harm being done at present, is the target oriented approach in evaluation and monitoring. The Block Development Officer being saddled with the responsibility of identification of about 600 persons, is busy with matters of administrative nature. Further, routine schemes like Family Welfare, Small Savings, Panchayat Administration etc., take much of his time, and all these leave him with little time to scrutinise and select eligible beneficiaries properly. The superior officers being keen that the subsidy should be utilised and being under the strong pressure from the political and vested interests operating at the block level, the subsidies flow in a hapazard manner and many times to the non-poor. The financial targets may be fulfilled, but the needy are ignored in the process. The same story repeats over and over again for years and contributes to the failure of the target oriented approach in monitoring.

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* Chief Executive Officer, Zilla Parishad, Yavatmal.

Another defect in the present set-up is the release of various benefits after the actual utilization—e.g., the subsidies on seeds, fertilizers and insecticides are generally released after utilisation and production of receipts. The poor farmer is not in a position to pay the non-subsidy portion in cash. He takes the requirements of inputs on credit basis from the bigger farmers. Further, with the high cost of the insecticides, fertilizers, etc., it is not possible for him to pay for the non-subsidy portion. Thus, these benefits are also generally passed on to the better-off farmers in the name of small farmers.

In most of the schemes, one generally finds that the work of the administration ends up with the release of the subsidy and loan and there is no follow-up by them.

All the above factors stop the real benefits from percolating to the lowest rung of the society. All these problems need to be tackled if the objectives of ameliorating the poverty are to bear fruits.

Isolation of the Beneficiary

We have been going by the individual beneficiary and this concept needs to be changed to beneficiary family. A villagewise list of all these beneficiary families should be prepared and this list should be got approved by the Gram Sabha or the Panchayat in the presence of the Block Development Officers. After isolating the beneficiary families, a census of all these beneficiary families should be made and maintained at block level, village-wise and income-wise. This would constitute the basic data bank and action plan can be prepared for individual families on the basis of this information. Once the list of beneficiary families is finalised, no addition should be made. This would eliminate involvement of the local political groups and also minimise corruption on the part of the local functionaries of the Government. This would also eliminate the necessity of selecting the beneficiaries every time a scheme is to be implemented since the beneficiaries are readily available. This will ensure that the same set of people do not take advantage of the schemes again.

Separation of Development & Administration

At present the development programmes get mixed up with administration at the local level. The Block Development Officers have become also administrative officers. Development agency should be separated at the block level and the development machinery should be relieved of all the administrative responsibility. The Extenson Officers should be directly put in charge of the development activities and shall be exclusively responsible for the rural development programmes. Other schemes of general and routine nature should be tackled by the administrative set-up, which shall function separtely at the block level.

Once we have the *data bank* ready with us, it is not necessary to have separate schemes for various target groups and under the same scheme all the target groups including the weaker section etc., can be covered suitably. This would eliminate the need for multiple schemes, which are operating at the same time for the same purpose and may also offset to some extent the increased administrative cost and also result in the streamlining of the development machinery.

The reach of the development machinery ends at the block level and below the block level. It is the people who have to reach for the development. It has thereby created distortions in the implementation of the Development Programmes. Once the action plan is prepared for a group of 50 to 100 beneficiary families one Extension Officer should be put in charge for this purpose. It shall be the duty of the Extension Officer to go to the villages and get all the formalities completed. He shall release all the subsidies and also reach the benefit at the village level directly and would eliminate the middle man and the political groups.

Follow-up measures

There is a great need to establish and maintain the rapport with the beneficiary for the success of the rural development schemes. The beneficiary should not be forgotten and follow up measures should be strengthened so that the beneficiary derives fullest benefits of the scheme, in the minimum time e.g., if the subsidy is released for digging up a well, our Extension Officer should not only release the subsidy but make available all other inputs like cement etc., from proper agency and also ensure that the purpose for which the loan is taken is achieved. This would also greatly boost the morale of the poor beneficiaries.

Providing leadership and management inputs

The most important aspect of the rural development lies in providing imaginative leadership and proper management at the block level. The integrated rural development programme envisages creation of separate machinery at district level, but this needs to be done at the block level, even though costs may be high. Suitable management and motivation should be given to the officers charged with the responsibility of the programme at every level so that dis-illusionment does not arise. Further only young people should be posted at all levels so that they work with zeal and interest and without family or health problems. There is a great need to put in initiative and drive in the entire gamut of the administrative set-up.

Involvement of Voluntary agencies

Voluntary agencies generally get mixed up with political groups and pressure groups. Hence there is a need to avoid over-involvement of the non-official and voluntary agencies at an active level and their help may be taken as an advisory body at the district level.

Rural development is an arduous task. In a block of one lakh population, the volunerable section may not be less than 8,00 families. Even if concrete efforts are made to tackle 500 families per year and with a success rate of 60 per cent, it should not be impossible to provide a decent living in ten years to 30 per cent of these people. But that calls for imagination, grit and determination at all levels in the Government otherwise in the present set up there is a danger of frittering away of resources without substantive benefits flowing to the vulnerable sections of the rural society.

Scaling the Mountain with Amputated Legs

Milap Chand Dandia*

CAN anyone scale a mountain with amputated legs or pull a rickshaw or ride on a bicycle or plough a field ? Probably till a few years ago the answer to this question would have been a big 'No' but today it is no more an impossibility.

No one now needs be ashamed of his amputated limb. He need not consider himself a burden on the society on this count. The Rehabilitation Centre at Sawai Man Singh Hospital, Jaipur, transforms the amputatee into the normal man. Thanks to Dr. Pramod Karan Sethi, whose untiring efforts have brought a new ray of hope in the lives of the handicapped.

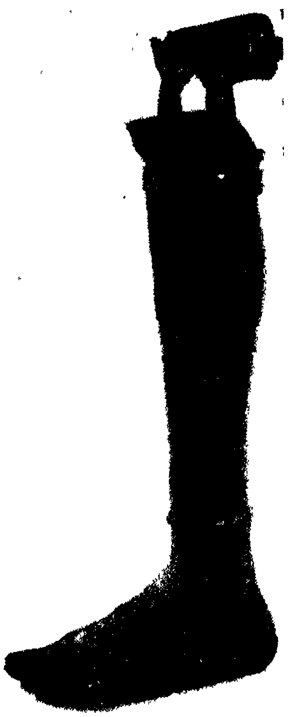
His magic innovation, the 'Jaipur Foot' has won him this year's Magsaysay Award for 'outstanding service to the humanity.' Earlier this year on the Republic Day the Doctor was honoured by the President with the award of 'Padma Shri'. But it was a long journey and a great struggle for the doctor before his 'outstanding services to the humanity' were recognised.

Limb Poses Problems

After finishing his studies abroad when Dr. Sethi joined the Sawai Man Singh Medical College and Hospital in the year 1958 as an orthopaedic surgeon there was only one artificial limb manufacturing centre in the country at Pune. The Centre was set up by the army during the second world war. Much later the World Health Organisation helped setting up another such unit at Bombay. But the limbs produced at these centres were too costly and beyond the means of poor patients. To keep the limbs in serviceable condition was all the more difficult. Every time the limb posed some problem patient was required to go to Pune or Bombay as the repairing facility existed nowhere else. This created lots of problems and patients generally abandoned the aid after some time. It prompted Dr. Sethi to set up one workshop at Jaipur itself. He sent one of his plaster-room assistants for training in the skill. On his completion of training a small workshop was set up in an obscure corner of the SMS Hospital. And this is how the seed for today's 'Jaipur Foot' was sown.

Initially the workshop undertook repair work of the artificial limbs. Soon manufacturing of simple aids like calipers was also started. But the Doctor was not satisfied with this much as for getting an artificial limb patients had to go to Pune and it involved many trips to that place which was again not possible for people with ordinary means. So he decided to start manufacturing limbs at the hospital workshop.

With his experience Dr. Sethi had come to the conclusion that Pune design of artifical leg might have been appropriate for use in western countries but was not suitable for Indian conditions. The limb developed and used in western countries had many inherent defects from Indian point of view. The already expensive limb was made more expensive as putting on shoes was necessary with it. It was also unfit for working in agricultural fields which required long hours of work in mud or water. The manoeuvrability of the western limb was also poor. Besides it was too heavy and made the user uncomfortable. It also needed frequent repairs. So he thought of devising an artificial leg which will have full manoeuvrability like a natural leg, will be sturdy and not need too much of maintenance requiring frequent visits to the workshop and above all make use of local talent so that the product will cost much less than its western style counterpart.



The Jaipur Foot

Birth of Jaipur Foot

As Dr. Pramod Karan Sethi puts it, "But to put the idea through was not an easy task—our trained technician was not ready to go beyond that he had learnt during his formal education. When we tried to involve local artisans who though had no formal education were experts in their art, it invited lot of criticism from the world of 'qualified' persons. So much so that some even went to the extent of charging me of encouraging quakery. But unmindful of all that we proceeded forward and finally the 'Jaipur Foot' was born."

The 'Jaipur Foot' looks and works like the real limb. A few months ago Dr. Sethi invited some journalists in New Delhi to demonstrate 'Jaipur Foot' before them. One beneficiary was asked to run before the audience and the audience was asked to watch the man keenly and find out which of his legs was

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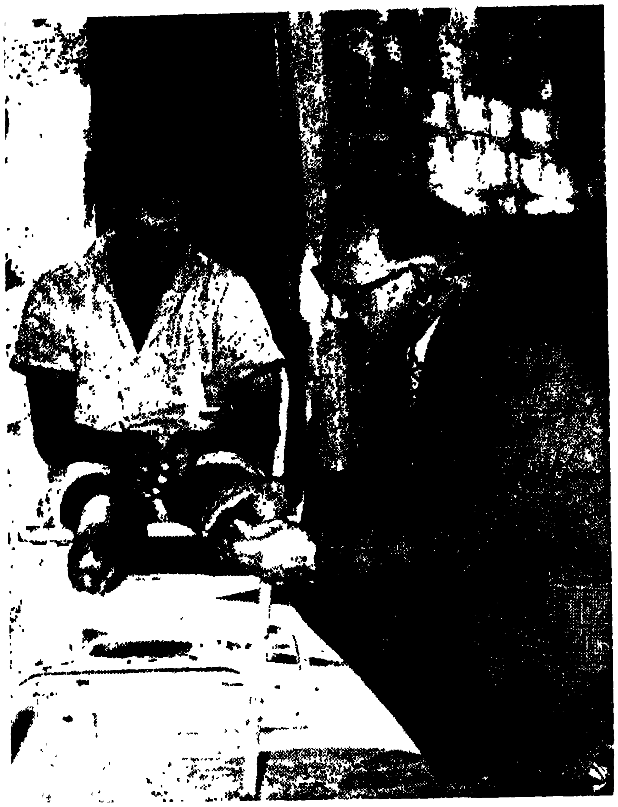
*Correspondent, *The Economic Times*, Jaipur



Dr. Pramod Karan Sethi examining a patient with amputated legs

artificial. After the demonstration was over some journalists claimed that right leg of the demonstrator was artificial while others thought it was the left one. At this point Dr. Sethi asked the same person to come again before the audience and put off his artificial limbs and to the amazement of all both of his legs were artificial 'Jaipur Foot'

Dedicated Team Work

Dr. Sethi gives the credit for this all 'to my team of doctors and the skill and dedication of Master Ramachandra and other local artisans. When the formally trained technician was unable to shun his inhibitions regarding indigenous methods, I requested Masterji (Ramachandra who looks after the workshop) to associate in this work. Masterji at that time was a teacher in the local School of Arts & Crafts imparting training in handicrafts to the handicapped. He accepted my invitation and dedicated himself to the service of humanity. We wanted that the limb produced at Jaipur should look like real one so that no shoes will be required to hide the artificiality though shoes could be put on at the will of the user".

"Our concern was also to make the limb waterproof since most of the patients come from peasantry. Efforts to enlist cooperation from some big companies manufacturing rubber products proved of no avail. No one was in fact ready to share the technique of vulcanising rubber as per our requirements. Here again a local artisan, Chugga Bhai, having no formal education came to our rescue. He runs a small roadside tyre, tube retreading and repairing shop. He used to do the vulcanising as and when requested for, but did not accept any payment for this work. This was embarrassing and when we conveyed him our feelings Chugga Bhai agreed to pass on the technique to us enabling us to do the required job in our own workshop. For quite a few years we continued experimenting. Many designs were prepared and discarded. Finally we succeeded in producing an artificial limb which not only looked like real one but also served as natural".

'Jaipur Foot' is water proof and sturdy. It has a unique feature that permits the amputatee not only walk on uneven ground but also sit cross-legged, squat, till the field, move around in mud and water without any danger of spoiling the limb." The Jaipur Foot has no wooden socket. Unlike limbs produced at other centres the Jaipur Foot is made of aluminium and thus is lighter in weight and far more durable. It is also the cheapest costwise.

The Rehabilitation Centre at the SMS Hospital, Jaipur is unique in more ways than one. While it establishes the usefulness of the local artisan skills, it also provides an excellent example of how the society can be benefitted in real terms with the meaningful collaboration of government and voluntary agencies.

Till the year 1975 the annual average of artificial limbs produced and provided from this centre was less than 50. In the year 1980 the number

Scaling the mountain with an artificial leg

sharply rose to 1500. The figure this year may go beyond 2000. The patients come from as far away as Tamil Nadu, Kerala, Jammu and Kashmir, Orissa, West Bengal, Maharashtra, Goa and even from Nepal. Pakistan and Bangla Desh. Serving the every increasing number of patients has been possible with effective collaboration with Bhagwan Mahaveer Viklang Sahayta Samiti (Lord Mahavira Society for help to the handicapped).

The Bhagwan Mahaveer Viklang Sahayta Samiti was established in Jaipur with sizeable help from Rajasthan Government in the year 1975 to commemorate the 2500th birth anniversary of Lord Mahavira. Generous donations came forward from the public too. Today the Samiti has an estimated fixed deposit of about Rs. 20 lakhs. The Samiti has taken upon itself the responsibility of providing artificial limbs to whosoever comes to the rehabiliation centre, free of cost. No one is ever refused admission. The project is financed by besides interest accruals on the fixed deposit, the benevolent contributions from the large number of Philanthropists.

As soon as anyone is admitted in the Rehabilitation Centre, Hospital provides him shelter and free food The rest is the responsibility of the Samiti. Besides bearing the cost of the limb the Samiti tries to rehabilitate the patient socially too. With this aim in view every amputatee, on admission, is provided with a kit

It is difficult to differentiate between an artificial foot and the real one

A person fitted with an artificial leg plying a rikshaw

An artisan, with both legs amputated making the "Foot".

consisting of a towel, soap, tooth powder, utensils for eating food and a tumbler for drinking water. All these articles are given on take-away basis as most of the patients come from such poor families that when they come to the centre they hardly have anything with them. After the limb is fitted the patient is given a free rail/bus ticket too upto his residence.

Says Dr. Sethi, 'Mostly those who come to the centre come with a feeling that there is no one in this world to bother for them. So the first act which we ask him to perform after the admission is to write a post card about his whereabouts to his nearest. When he gets a reply, he feels that he laid wrong notions that no one bothered about him and that there was someone in this world to care for him. This changes his attitude towards the society as a whole.

About 60 per cent of the patients admitted here are illiterate. Since it takes about three weeks to fit an artificial limb, Samiti has now taken upon the task of educating too. It has introduced a three-week crash programme of education for which regular classes are held at the Rehabilitation Centre, 'Our endeavour is that when he returns back he does not go with a new leg alone but with a new outlook too and a feeling of his usefulness to the society."

A Farmer fitted with an artificial leg, working in his field.

Seaweed Good for Health

ENDEMIC GOITRE may affect as many as 300 million people around the world. This need alone should be sufficient to argue the case for the revival of the old custom of eating seaweed, long known as an efficacious remedy for goitre. But there are other reasons as well for reviving this custom. Certain species are excellent vermifuges and can be used directly or as extracts against Ascaris, the relatively harmless intestinal worm that is estimated to infect one-third of all humanity.

Seaweed production is developing fast in many areas. The Republic of Korea trebled its kelp production in eight years, reaching 195,000 tons in 1978. In the Philippines, where the natural resources of the red alga Eucheuma were overharvested in the mid-1960s, a mariculture programme has raised production from a range of 60 to 150 tons a year to 34,000 tons in 1978. In Chile, exports of 1500 tons in 1969 have been increased to more than 10,000 tons a decade later.

Yet even with this growing output, the present total world harvest, at 3 million tons a year, wet weight, is so small, that even if all of it were used for human consumption there would only be 100 grammes at commercial dry weight per capita per annum.

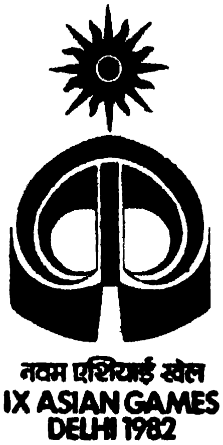
The leading world producer of seaweed today is China, with an output of 1650,000 tons annually. For centuries, the Japanese kelp, Laminaria japonica, was much appreciated in China, and imported. In the late 1920s, it was accidentally introduced from Japan and naturalised along the northern most part of the Chinese cost. However, the largest annual output from this natural growth did not exceed 60 tons. In 1954, a working programme on the biology and cultivation of Laminaria was established in Qingdao. In the 1950s, new cultural methods were introduced. As a result China's annual seaweed harvest has grown from the 62 tons fresh weight gathered from natural growths in 1952 to 146,000 tons in 1959, 530,000 tons in 1970 and 1650,000 tons in 1979. Such spectacular leaps in production following technical innovation may be compared to the Japanese production of nori, which multiplied sevenfold between the 1940s and 1970 with the introduction of such devices as horizontal net beds, artificial seeding, cold storage and floating nets.

China deserves to be held up as a model for its utilization of the product. Large quantities are distributed among the population in highland areas, where the high prevalence of endemic goitre is caused by low iodine values in the soil.

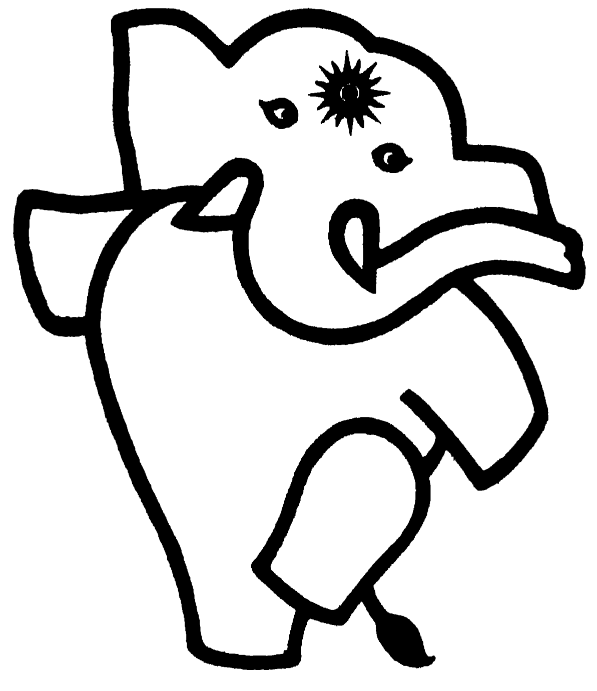
Brazil has had less successful results from an effort to develop seaweed production. Some years ago, a company started harvesting the rich natural resources in Rio Grande de Norte, Ceara and Paraiba, the northern states known for high unemployment and low levels to development.

The development of mariculture on a large scale to the level of efficiency achieved in agriculture would help to overcome problems of unemployment and underemployment. . It would imply, moreover, a resettlement of people from city slums and other overpopulated regions. The observation that nearshore populations are healthier and happier than those of distant plains and highlands is explained by the fact that more varied food is available in seashore areas where malnutrition and deficiency diseases are rare.

(CERES)



"APPU" the prancing baby elephant is the Mascot (right) and the Jantar Mantar Observatory is the Logo (Left) of the IX ASIAD



The IX ASIAD 1982

John Churchill*

THE count down for the 9th Asiad has already begun. The Asian Games torch will return to its birth place, New Delhi after a lapse of over three decades, having travelled all over Asia acquiring character of a major international sports event. It was on March 4, 1951 that India's first Prime Minister, Shri Jawaharlal Nehru lit the Asian Games torch for the first time, from the sun-rays at the historic Red Fort. Since then, it has visited six important capitals of Asian countries spreading the message of peace and friendship and cementing relations among different countries, besides providing opportunities to improve physical standards. Though it was only a modest beginning with eleven countries taking part in just six disciplines, today, it has become a big international sports event with more than 35 countries actively participating.

Birth of Asian Games

Late Jawaharlal Nehru, played a dominant role in the formation of the Asian Games movement and can be rightly called the Father of the Asian Games. It was his vision and perseverance that brought the countries together to make the Games a success. Of course, the man behind the entire concept of the Asian Games Federation was Prof. G. D. Sondhi, who had put the idea to Shri Nehru during the Asian Relations Conference held in New Delhi in 1947. Shri Nehru followed it up with his usual zeal and enthusiasm for sports. His proposals were well-received by the delegates of the Conference. At the London Olympics in 1948, the Asian representatives gave a sanction to the plan. The Far Eastern Games which were in existence since 1913 became the present Asian Games Federation. The Indian Capital, New Delhi was chosen the venue for the First Asian Games. The National Stadium was then constructed at a cost of Rupees eight lakhs on a sixty-acre plot. Having a seating capacity of 25,000, it has a cinder track of eight lanes for athletics, like sprints and jumps and a central field of natural turf suitable for games like football and hockey.

389 competitors from eleven countries—Afghanistan, Burma, Ceylon (now Sri Lanka), India, Indonesia, Iran, Japan, the Philippines, Singapore, Thailand and Nepal took part in the first ever Asiad. There were six disciplines—athletics, basketball, cycling, football, swimming and weightlifting.

The Organising Director of the first Asian Games, Shri Anthony de Mellow played a crucial role in making the games a grand success. Late Nehru's famous message at that time "Play the game in the spirit of the game" is still fresh and ever inspiring to all even today.

India's man of the First Asiad was undoubtedly Bombay's Lavy Pianto, who had claimed two gold medals—in 100 metres and 200 metres. Nikka Singh got the first Gold Medal for India by winning the 1500 metres event. Som Nath claimed a Silver Medal in the hammer throw event. India's other gold medal winners included : Ranjit Singh—800 metres, Madan Lal—shot put, Chota Singh—Marathon, and Bakhtawar Singh—50 kilometre walk.

The most memorable performance was that of the Indian Football team, in the first Asiad. In the final, India beat Iran by a solitary goal. It was bare-footed Mewa Lal who scored the winning goal for India.

*AIR Correspondent

Model of the Indoor Stadium at I. P. Estate, New Delhi

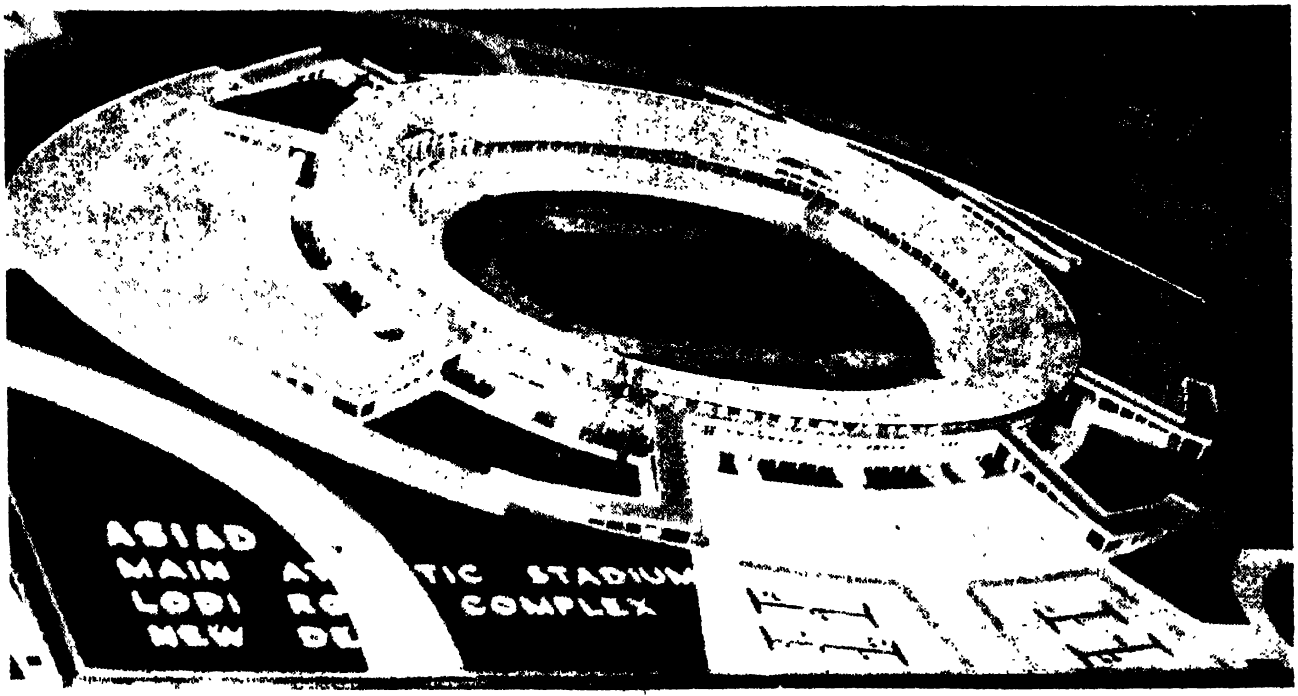
Even since the Asian Games movement started, the games are being held at regular intervals after every four years, just like the Olympics.

Asian Games Disciplines

The price tag of the first Asiad was Rupees 6.50 lakhs—just for six disciplines It was indeed a very small affair compared to the gigantic event—the 9th Asiad with 21 disciplines in the offing.

The Olympics have grown and grown. Now there is a cry for reducing their size. In the forthcoming Asiad in New Delhi almost all the Olympic disciplines of the last Moscow Olympics are going to be staged. It will be a record 21 disciplines to make it the biggest Asiad ever. The disciplines included are : Athletics, Archery, Badminton, Basketball, Boxing, Cycling, Fencing, Football, Gymnastics, Hockey, Handball, Shooting, Swimming, Table Tennis, Tennis, Volleyball, Weightlifting, Wrestling, Yachting, Equestrian and Rowing. Golf, Handball, Rowing and Equestrian will be the new disciplines included for the first time in the Asian Games. Besides, there are two more demonstration games—Sepak Takraw of Malaysia and Kabaddi of India—obviously with a view to bringing them into the purview of the Asian Games in course of time.

Model of the Main Stadium at Lodhi Road, New Delhi



Commitment and Controversy

Staging of 21 disciplines and two demonstration games is indeed a herculean task, and definitely an ambitious programme. It involves huge expenditure on the construction of various infrastructural facilities, like Stadia of international standards, procurement of electronic equipment, pooling of resources, in both men and material including talented and qualified personnel for the smooth conduction of games, provision of facilities to participants, delegates, visitors, spectators etc.

Allotment of the Games to a city is a rare honour bestowed upon a country and once allotted, then it becomes a National prestige to make the same a success. India was allotted the 9th Asian Games in 1976 during the Montreal Olympics. At that time, the Indian Olympic Association received a green signal from the Government. Little did any one realise that the issue of hosting the 9th Asiad will be politicalised and will produce so much noise and controversy. It was then taken for granted that it was a Nation's commitment. In fact there was jubiliation in all quarters when the Asian Games Federation Council chose New Delhi as the venue. It was then estimated that the budget will be between Rs. 20 crores to Rs. 25 crores.

Ever since the Games were allotted to New Delhi, the whole Asiad project has run into rough weather. First, the 1977 General Elections which resulted in the emergence of the Janata Government. The cost of the Asian Games became the bone of contention, which led the then Government to keep the project in a state of suspended animation for some time. By the time a decision was taken and an Organising Committee of the Asian Games was set up in March, 1979, three precious years were lost. Well time and tide wait for none. No sooner the Organising Committee started setting its house in order, the Asiad Project suffered a sever jolt—the political turmoil and politicians airing the views that hosting Asian Games in India was a colossal waste of public money. Many eye brows were raised. There was no dearth of doubting Thomases and carping critics. A few Asian countries which have the required infrastructural facilities started angling on the side-lines to snatch the opportunity if India expressed its inability to host the Games. With the change in Government, a sigh of relief was expressed and the sports lovers all over the country are confident that the Asian Games are now bound to be held in India itself. Thus after loosing four precious years, the preparatory work for the Asian games has taken off from the drawing boards to the actual sites.

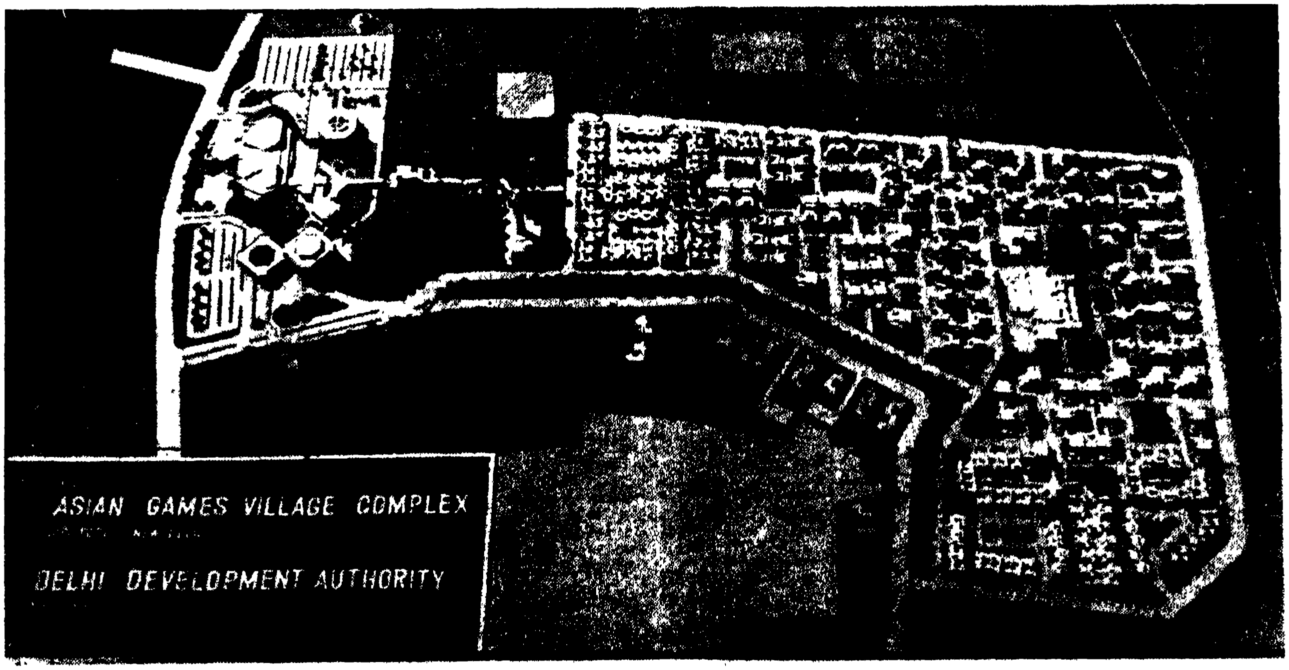
A special committee for the Asian Games was set up headed by Shri V. C. Shukla and after his resignation, is now headed by Shri Buta Singh. 25 sub-committees have been formed to attend to various aspects of organisation and conduct of games.

Mascot and Logo

A Baby elephant 'APPU' with a mark of *Bindiya* on the fore-head has been chosen the Mascot of the 9th Asian Games. Elephant is loved all over the world for its wisdom, strength and loyalty. In India, it is considered particularly auspicious and figures predominantly in her mythology and folklore. 'APPU' the prancing baby elephant, gay and playful, with a merry twinkle in his eyes, amply embodies the spirit of Asian Games. The mark of a *Bindiya* on his forehead is actually the Symbol of the Asian Games.

The Jantar Mantar Observatory has been choosen as the Logo of the Asian Games. Jantar Mantar has been chosen for three reasons—one, it is in the heart of the city of Delhi; two, it is a monument of purely Indian architecture and three, it represents a quest for knowledge and perfection. The Jantar Mantar Emblem transmits three visual messages relevant to the Asian Games they are : (i) the form suggests a stadium, which is the focus of any sporting event; (ii) it resembles a Peepul leaf, which in India symbolises the

Model of the Asian Games Complex



A house in the Asian Games Village

achievement of perfection and is auspicious; and (iii) the *Namaskar* or welcome, our typical way of greeting is visible in the design.

Progress of Construction

Though the day for the commencement of the Games has been fixed as November 19, 1982, the deadline for the completion of the sports complexes is June, 1982. Preparations are going on at a breakneck speed and it is virtually a race against time. More than ten thousand workers led by engineers, architects and officials are working round the clock to transform Delhi into a dreamland. The Organisers are hopeful of completing the task of building infrastructural facilities like stadia, flyovers, hotels, hospitals and other facilities by June next year. The entire project is estimated to cost the Government Rs. 54.85 crores.

There are three main organisations handling the major construction works. They are : the Central Public Works Department, the Delhi Development Authority and the New Delhi Municipal Committee.

Main Stadium

The C.P.W..D has been entrusted with the task of constructing the main stadium at Lodhi Road. Estimated to cost Rs. 16.21 crores the stadium is being constructed on a 90 acre plot. It will have a seating capacity of 75,000, arranged in two-tiers. The lower tier for VIPs will have 18,000 capacity and will be covered. For all practical purposes this will be the main nerve centre. Apart from the Athletic events and the opening and closing ceremonies, the final event of football would be staged at this venue.

The entire stadium will be flood-lit with modern lighting arrangements. Connected by four approach roads, the stadium will have fiftysix outlets for the upper gallery and ten separate entries for the VIP stands and can be evacuated in just seven minutes in case of any emergency. For staging the track and field events, olympian track, the first of its kind in the world is being laid. The stadium will have a captive diesel power generator of one Megawatt and a power substation to ensure continuous power supply. More than 50 per cent of the work has been completed so far. The stadium will be provided with modern electronic equipment to display the score and the results of the various events. The main press centre will be located in the stadium. An agreement has been reached with a Hungarian firm for the supply of giant score boards, nine metres in height and 23 metres in length for the display of results in both Hindi and English. Another score board of 13 metres x 6 metres will exhibit abstract results in English. A Japanese firm has agreed to install photo-finish cameras to obtain photo-finish results of track and field events. All the results of events taking place at other venues will also be flashed at the main stadium.

National Stadium

THE CPWD is also renovating the National Stadium near India Gate at a cost of Rs. 2.47 crores. Incidentally, this was the venue for the first Asian Games in 1951. Now this will be the venue for the men's hockey. It will have a synthetic turf pitch which is suitable both for football as well as hockey. Though the seating capacity of the stadium will remain 25,000, about 5,000 seats will have over-head cover. The stadium is provided with eight lanes of single track for track events. The two-storyed building is being renovated to provide suitable accommodation to the players, the organisers, press, TV and A.I.R. The external facade of the building, is however, being retained. The CPWD engineers are confident that they will be able to complete the renovation work by the end of this year.

Asian Games Village

The Delhi Development Authority is constructing the Asian Games Village complex, at Siri Fort Area in South Delhi. Estimated to cost about Rs. 22 crores, the Asian Games Village will indeed be a garden of Eden, where sportsmen and women will be able to get all their requirements. It has been designed to provide accommodation to over 5,000 athletes and officials. Constructed on a 65-acre plot, the village complex is being provided with several facilities like a mini-hospital, a shopping centre, warming up halls, practice tracks and fields, discotheque hall, music room, library, coffee shop, posts and telegraph and banking facilities, parks and gardens, an open air theatre and a restaurant with dining facilities for 2,000 people at a time. The construction of various residential units has almost been completed. Over 850 residential units of ten different categories have come up. A unique feature of the village complex will be the construction of 180 feet tall tower restaurant-cum-viewing gallery. Nearly one lakh sapplings are being planted in the village complex to make the area green. The village has been designed to enable athletes to relax and feel at home. The engineers and architects are confident that they will be able to complete the task by May, 1982. After the Games these flats are likely to be sold to the public.

Rajghat Spot Complex

The most controversy-ridden of the sports complexes is the Rajghat Sport complex. Spread over 110 acres of land on Jamuna river front the main feature of the sports complex is an air-conditioned indoor stadium with a capacity of twenty-five thousand. City planners and architects are sharply divided over the location and design of the stadium. The unique design of the stadium of 150 metres-diametre, the first of its kind in the country and the third or fourth largest in the world, is going to be a bowl-like structure, supported, on eight RCC pylons. It will have a structural steel space-frame roof covered with corrugated aluminium sheets rising to a height of about 44 metres. It will have a sound-proof collapsible partition to facilitate holding two events simultaneously. When completed, it will be an outstanding landmark in the overall cityscape of Delhi. The area of the size of 78 metres × 68 metres is suitable for staging games and events like gymnastics, tennis, table tennis, basketball, volleyball, handball, boxing, badminton, wrestling weight-lifting and of course stage dramas and cultural and circus shows.

The DDA, Vice-Chairman, Shri Ailawadi has dispelled all fears and apprehensions expressed by several critics regarding sub-soil water and the danger of flooding from the nearby river. Engineers and architects have said that all these things have been taken into consideration while taking up the work. As for floods, the ground level is being raised to 205.5 metres, while the highest flood level recorded in 1978 was 205.3 metres. Besides, there are elaborate plans to drain off rain water during the monsoon. Over fifty-six thousand plants, trees and saplings will be planted in one-fourth of the area to make it green. More than 50 per cent of the work has been completed.

Cycle Velodrome

The cycle velodrome of Olympic standard is coming up in the north side of the Rajghat Stadium. The cycle track is so planned that each competitor will have more or less the same wind resistance during the events. The concrete track has minimum slope of 7 degrees at the starting point. The track has maximum slope of 38 degrees and minimum slope of 9 degrees beyond the starting point. The width of the track is as per international standard i. e. 7. 0 metre. Its length is 333.33 metre. The outside edge of the track is provided with safety fence. Spectator gallery is at least 5 metre away from the track. Access to the track centre is by means of a tunnel with ramps. It will have permanant seating capacity of about 2,000. More seats will be provided by creating temporary stands. Adequate accommodation for press room, TV, athletes etc. has been catered for the cycle velodrome is expected to be completed by March, 1982.

Talkatora Swimming Pool

The New Delhi Municipal Committee is constructing the olympic standard swimming pool at the Talkatora Gardens, near Rashtrapati Bhavan. Estimated to cost Rs. 9.25 crores it was originally planned and designed for having a fully covered air conditioned swimming pool. But now this plan has been given up and the pool will not be covered. It will have a seating capacity of 15,000. More than sixty per cent of the work has already been completed. It will have ancillary facilities like a diving pool and a practice pool. The main pool will be of the size of 15 metres × 26 metres × 2 metres; while the warming up pool will be 15 metres × 11 metres × 2 metres. The diving pool dimension will be 25 metres × 25 metres × 5 metres. There are also plans to provide illuminations suitable for colour TV converages. The temperature of the water will be maintained at 28°C through a net work of oil-fired boilers. It is proposed to disinfect the water by the latest method of ozonisation and a complete water change will be effected every four hours to maintain the highest standards of hygiene.

Tennis will be played at the Hauz Khas Tennis Stadium in South Delhi. The complex has already got nine lawn tennis courts. And two more central courts are coming up with permanent seating arrangements for nearly 1500. Estimated to cost Rs. 31. 26 lakhs, it will have accommodation for players, facilities for press, TV. AIR and a VIP Lounge. The construction work is likely to be completed by the end of this year.

Other Renovation Works

Some existing facilities in the capital are being renovated or remodelled. The Shivaji Stadium, near Connaught Place will have additional facilities for players and officials. Being the venue for women's hockey, the renovation work is likely to be completed by the end of this year.

Basketball will be played in Indoor Stadium at Talkatora Gardan. It is also being modified at a cost of Rs. 16 lakhs. Other venues that are expected to get a new look for the Asian Games include : the Ambedkar stadium, the home for city's football and the adjacent Ferozeshah Kotla Cricket Stadium, near Delhi Gate. Originally, football matches till the semi-finals were to be played at the Ferozeshah Kotla Stadium and also at the Model Town Stadium. But the Indian Football Federation has not yet finalised the venues. Calcutta is also likely to be a venue for some of the matches of Asian football. The final will be played at the main stadium in Lodhi Road under flood lights.

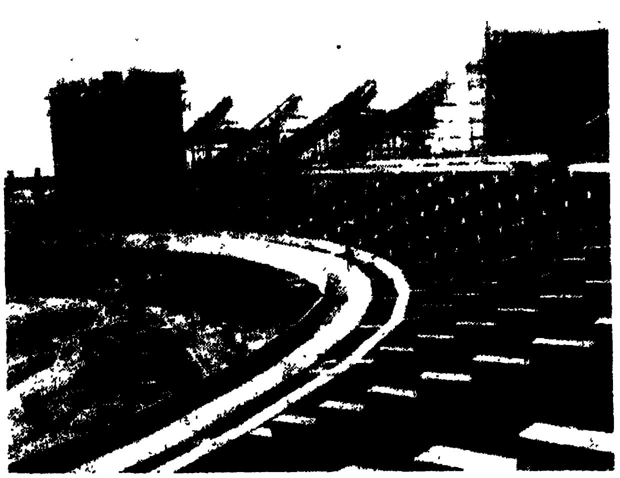
The venue for Eqestrian events will be the Harbaksh Stadium in Delhi Cantonment. The renovation work is likely to be completed by the end of this year. The stadium is being modified to have 5000 covered seats, besides adequate facilities for players, T. V., AIR and game officials.

A hall is being constructed at Pragati Maidan Exhibition Complex, where Boxing and Table Tennis events will be held. It will have a seating capacity of about 4000. Shooting will be held a the Tughlakabad Shooting range.

Flyovers

Construction work is in progress almost on a war footing on seven flyovers in the city. Estimated to cost Rs. 35 crores these flyovers will facilitate smooth flow of traffic.

Construction work going on in the Indoor Stadium at I. P. Estate, New Delhi



Thirteen important roads are being widened. The NDMC is constructing an underground parking in front of Regal building in Connaught circus at an estimated cost of Rs. 4.74 crores. The project is being taken up, to cope with the increase in traffic in and around Connaught Place. It will provide parking space for about 1000 vehicles and will have two outles.

Ten new hotels are coming up, adding over three thousand rooms to the existing facilities. The Delhi Telephones are expanding their network. The Railways are electrifying the Ring Railway System and there will be a train every 15 minutes during peak hours.

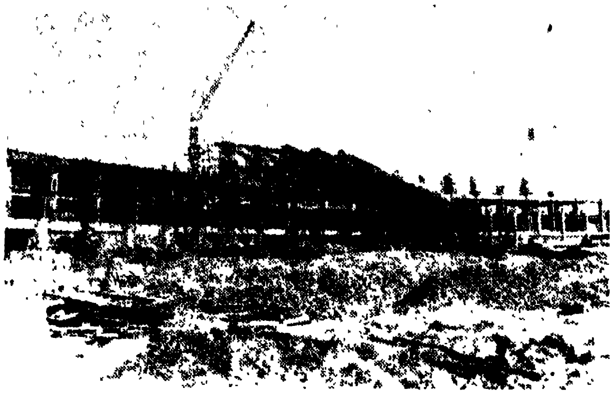
Electronics Equipment

A Japaness firm has agreed to provide on a free-loan basis twenty-five electronic equipment including the Time and Electronic Score Boards. Several manufacturers of sports goods have come forward to supply equipment free and even offered to pay royalties

Colour TV

It is now certain that the Asian Games will be televised in colour to viewers abroad, whereas for viewers in India, it will be in black and white. Four outdoor broadcasting vans are being acquired for the purpose. They will help in relaying the games through satellite to other countries as well as in capsule forms.

The Chairman of the Special Organising Committee, Shri Buta Singh has assured the Parliament that the necessary infrastructure facilities will be ready well in time. The Deputy Chairman of the Special Committee, Shri Ram Niwas Mirdha was more emphatic while talking to newsmen recently that the total cost of the Asian Games will not exceed Rs. 60.80 crores, the amount sanctioned by the Government.



(Above). Swimming Pool being constructed at Tal-Katora Garden, New Delhi, (Below left) Main Stadium taking shape at Lodhi Road, New Delhi

Benefits

As the preparations are going on feverishly, criticism against hosting the games has also reached its peak. Some political parties are vehemently opposed to India hosting the games mainly on the ground that it will cost the country dearly and the money could be utilised for providing drinking water facilities to the rural areas. But by hosting the Asian Games the country will be benefitted in many ways.

The first and moremost, it will be a shot in the arm to our sportsmen and women and millions of youth will get an opportunity to see top class sportsmen and women in action. The infrastructural facitities will be a permanent asset and India can bid for hosting Olympics or Commonwealth Games or any international event in future. Hosting an international tournament is a big source of earning foreign exchange.

People of Delhi will realise the benefits only after the staging of the Asian Games. The broadened roads and several flyovers will not only add to the beauty of the garden city but also help in easing traffic congestion. To be brief, hosting of Asian Games is an asset of the country.

Hosting of Asian Games is a National commitment that involves country's prestige and honour in the international arena. Upholding country's prestige and honour is the duty of every Indian. ☐

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Dairy Development and Income Distribution in India (Part 2)

Naresh Dayal*

WE can now draw the conclusion from the studies cited earlier that not only is the ownership of milch cattle and their productivity distributed unequally among different categories of farmers according to size class of holding, but one of the major constraints to higher yields among dairy cattle belonging to the poor farmers and landless labourers is the poor quality and quantity of feed. This category of cattle owners live close to subsistence level and therefore do not have the necessary working capital to feed their milch animals according to their requirements on the one hand. On the other hand since their cropping patterns are highly related to the consumption pattern of their households they are unable to spare sufficient land for growing green fodder. In addition, it has been our experience while implementing land reforms in the villages in Uttar Pradesh, that most of the communal land available for grazing has been encroached upon by the larger farmers. It is therefore unfortunate that small and landless farmers are unable to derive their due share of benefit from communal grazing land. The fact that they are hesitant to take advantage of development programmes and go in for higher yielding crossbred cattle is probably related to a realistic assessment on their part of their feed and fodder resources.

The success of dairying in increasing the income of farmers and particularly the poor farmers and landless depends not only upon yields of milch cattle but also on the returns which producers get for their milk. It has been pointed out by several experts that the price which producers currently get for their milk is too unremunerative to attract investments in modern inputs to increase milk production. Studies which estimate the cost of milk production and compare it with the purchase price of milk are few. One such study by A.V. K. Sastri makes this comparison for the supply areas of three major metropolises in India. The data from this study is presented in Table 5. It is apparent from the data given in Table 5 that the prices which the producers get even from the modern dairy plants are not remunerative. In fact in some cases the purchase price is even below the cost of production excluding family labour. In some areas, the consumer's price is deliberately kept low especially in major urban centres like Delhi due to the pressures of the consumer's lobby. However in most of the other small and big urban centres, the consumer's price of milk, both through the modern dairy plants as well as through the pprivate milk seller are fairly high. The problem is the difference between the price which the consumer pays for milk and the price which the producer gets. Unfortunately there are very few empirical studies to explain where this difference goes. In the case of the modern dairy plants, this difference could perhaps be largely explained by their high procurement, processing and marketing costs, especially in view of the fact that there is a very large underutilisation of installed capacity in these plants. In the case of the private channels of marketing, the belief of policy makers is well stated in the report of the National Commission on Agriculture :

> Even when the demand-supply situation compels very high selling price, the producers get very little, the middlemen pocketing the lion's share.

Perhaps the only empirical study of milk marketing in India both through private channels and through the modern dairy plants has been done by Nightingale. He makes a comparative study of the cost of marketing between modern dairy plants and the cycle-dudhia in the development block of Mehrauli near Delhi and reaches the conclusion that the dudhia is far more efficient with lesser marketing costs. This was in fact inevitable because the dudhia does not incur any expenditure on processing. In fact in this study, if the processing costs of the modern dairy plants is taken away from the total marketing costs per litre of milk, the marketing costs of the two systems would be fairly similar. Another fact brought out in this study is that the household prices received by milk producers in Mehrauli are a little higher than the purchase prices paid by the modern dairy plants. The comparison however would not entirely be fair because Mehrauli is a suburb of Delhi, and given the high demand for milk in the city there is a great deal of competition even among the private milk vendors and the prices are high. On the other hand most of the modern dairy plants buy their milk from the hinterland, in villages which are comparatively far away from the major consuming centres and the price of milk in these areas would obviously be lower. It would have been interesting to examine the price paid by private vendors and the dairy plants to the producers in the hinterland, especially if this information could be obtained by size class of holding. Such information is however not available. It has been our experience that the poor farmers and the landless labour are particularly vulnerable to the private marketing system because the private vendors also supply the needs of these sections for consumption credit and having accepted this credit these milk producers are bound to sell their milk to these vendors at whatever price they are prepared to pay. It is also however true that even the price the modern dairy plants pay in most states in India, does not reach the producer as these dairy plants and co-operatives often employ private middlemen for bringing the milk from the porducer to the collection centre.

*District Magistrate, Barabanki (U P) This article is continued from our previous Issue.

Relative Pricing of Milk

Although a detailed examination of the milk marketing system is beyond the scope of this paper, one aspect which is relevant in explaining the lack of incentive for the small farmer and landless labour for going in for crossbreeding is the relative pricing of cow and buffalo milk. While private vendors do not base their price on the quality of milk, since the Indian consumer prefers high fat content in milk, buffalo milk does fetch a premium price even in the private marketing channels. Most of the modern dairy plants and the cooperatives base their purchase prices on the fat content of milk. In this system too cow's milk is a loser because although the solids non-fat content of cow's milk is comparable to buffalo's milk, the fat content is less even in the milk of crossbred cows. Recently the National Dairy Development Board has developed a two-axis formula for the determination of milk price where due weightage will be given to both fat and solids and not fat in milk on the basis of their relative prices. This system has however yet to come into widespread operation

Development programmes which have attempted to overcome the above problems in India have largely been based on the pattern established by the Kaira District Cooperative Milk Union (AMUL) in Gujarat. This pattern uses the cooperative structure both for procuring, processing and marketing the milk of the producers as well as to supply them with modern inputs such as animal health cover, artificial insemination, concentrates, green fodder seed minikits etc. Milk is collected from the village twice a day and payment for it is also made twice a day, based on the quality of milk supplied. The system has apparently been eminently successful at least in the commercial sennse in many areas of Gujarat and also in some areas like Rajasthan. The Government of India has undertaken to repeat this success in a large number of other milksheds all over the country under the Operation Flood Programme. Some assessments of these development programmes have been made. The assessment made by Nyholm *et al* in the Bangalore milkshed area has been referred to earlier. The results of the study indicate that the benefits have been distributed very unevenly among the various size groups of dairy farmers. One of the conclusions of this study is that the cooperative marketing system has also adopted many traits characteristic of the private system with cooperative leaders belonging to the richer sections of rural society assuming the role of moneylanders and also, pocketing a large share of the profits which should have gone to poorer milk producers. One study in Mehsana district of Gujarat has been made about households owning cattle between 1966-67 and 1967-68. This indicates that while the percentage of landless labour households has remained more or less stationary, the percentage of small farmer households has fallen from 24.24 per cent to 18.52 per cent. The percentage of large farmers (over six hectares) has during the same period increased from 9 10 per cent to 23.46 per cent. This finding is significant in view of the fact that Mehsana is a district where a very large dairy plant on the same principle as Amul has been functioning very successfully. Dr. V. Kurien has asserted that 40 to 45 percent of the cooperative members' milk production in Amul is in the hands of landless labour and submarginal farmers and that their share has risen by 6 per cent in the three years prior to 1973 while in the adjacent area not covered by cooperatives the share of milk production of this section has declined from 20 per cent to 18 per cent in the same period. However the data on which this assertion is based was not available to us. Two other studies of Kaira district have been done by Dr. S. Thakur and S. M. Patel and M. K. Pandey. Both these studies compare the average annual income per household by size class and source of income control villages where the milk union (AMUL) is not active and in experiment villages which are covered by the activities of the milk union. The comparative results are presented in Tables 6(a) and 6(b). Both these studies have tried to argue that the landless and small farmers have benefited from the activities of the milk union and that for the landless dairying was the single largest source of income.

Income from Dairy

However on a closer look at the data it is apparent that total incomes of the landless are larger in the control villages than in the villages covered by dairy cooperatives. The income from dairy of the landless in the data provided by Thakur is also greater in control villages than in dairy cooperative villages although in the data provided by Patel and Pandey it is greater in the dairy cooperative villages. The data also indicates that although the incomes from dairying of small, medium and large farmers are greater in villages covered by dairy cooperatives, the differential in the case of larger farmers is much greater than in the case of small farmers. Accordingly to the Patel and Pandey study while the differential in the income from dairying of small farmers in the two groups of villages was 65 per cent, the differential in respect of large farmers was 223 per cent. Another disquieting indication of the data is that the income from sources other than dairying or crop production of all groups of farmers is less in the cooperativised villages than in control villages. This is particularly important in the case of the landless for whom total incomes are less in the cooperativised villages and also for small farmers for whom the difference in incomes from other sources is substantial. It is possible that this may be due to the fact that the emphasis on dairying in the villages covered by dairy cooperatives leaves the small farmers and landless lesser time to seek employment as agricultural labourers. Another possibility is that the emphasis on dairying and the tremendous increase in income therefrom to large and medium farmers has prompted them to change their cropping patterns in favour of crops which are less labour intensive. Unfortunately we do not have any data to test either hypothesis. But the issue merits further study because there is a reasonable cause of fear that the benefits of these programmes like the benefits of the new technology in agriculture, have gone largely to the medium and large farmers.

Table 5 Cost of production of milk in the hinterland of selected major dairying plants and the purchase price of milk of these plants (paise/kg.)

Location	ear	Buffalo Milk			Cow Milk		
		Net Cost (including family labour)	Of Production (excluding family labour)	Purchase Price	Net Cost (including family labour)	Of Production (excluding family labour)	Purchase Price
MADRAS							
1. Rural	69-70	104	67		92	59	
Area	70 71	100	63		84	54	
2. Suburban	69-70	96	71		142	104	
Area	70-71	86	65		133	94	
3. Urban	69-70	115	113		118	109	
Area	70-71	118	115		118	110	
	69-70			100-116			88-110
	70-71			100-116			88-100
CALCUTTA							
1. Rural	69-70				124	89	
Area	70-71				115	74	
2. Subarban	69-70				140	66	
Area	70-71				149	79	
3 Urban	69-70	176	170		168	166	
Area	70-71	175	170		157	155	
				170			125
DELHI							
1. Supply Area of	69-70	82	66		125	98	
D. M. S.	70-71	78	63		131	103	
2. Non-Supply Areas	69-70	76	61		97	76	
	70-71	76	61		97	76	
3. Rural	69-70	88	66		121	102	
Areas of	70-71	93	73		130	113	
Delhi	69-70			85-113			77-106
	70-71			78-107			n.a.

Table a (a) Annual income per household, Kaira District, Gojarat (in Rupees) D. S. Thakur

Size Group	Experiment				Control				% Change
	Crops	Dairy	Others	All.	Crops	Dairy	Ohters	All	
Landless	..	2042	875	2917	100	2416	1156	3572	-18.3
		(70.00)	(30.00)	(100)		(65.16)	(34.84)	(100)	...
Small	2730	1456	650	4836	1910	1033	1044	3987	21.3
	(56.5)	(30.10)	(13.45)	(100)	(47.90)	(25.90)	(26.20)	(100)	
Medium	5252	2186	422	7860	4822	1088	520	6430	
	(66.71)	(27.81)	(5.38)	(100)	(74.99)	(16.92)	(8.09)	(100)	22.2
Lage	8056	3210	678	11944	7986	1118	712	9816	21.7
	(67.45)	(26.87)	(5.68)	(100)	(81.36)	(11.39)	(7.25)	(100)	

Table 6 (b) Annual income per household, Kaira District (in thousand Rupees) Patel and Pandey.

Size Group	Experiment				Control				% Change
	Crops	Dairy	Others	All	Crops	Dairy	Others	All	
Landless	—	2.04	1.08	3.12	100	1.68	2.47	4.15	—24.8
		(65)	(35)	(100)		(40)	(60)	(100)	
Small	2.76	1.83	0.65	5.24	1.51	1.11	1.59	4.21	24.5
	(53)	(35)	(12)	(100)	(36)	(26)	(38)	(100)	
Medium	7.20	2.25	0.18	9.63	4.05	1.54	0.29	5.88	63.8
	(75)	(23)	(2)	(100)	(69)	(26)	(5)	(100)	
Large	24.36	3.94	0.83	29.08	8.26	1.22	1.24	10.72	171.3
	(84)	(13)	(3)	(100)	(77)	(11)	(12)	(100)	

(Concluded)

TRENDS

Phone Booths for Disabled

AN ambitious plan has been drawn up by the P&T Department for installation of Public Call Offices (PCOs) in cities and big towns throughout the country which are to be manned by physically handicapped persons. Many such PCOs have been yielding a net monthly income of more than Rs. 500 to each of the physically handicapped persons concerned.

Food Security System

A national food security system will be developed during the Sixth Plan, besides the wide ranging measures already initiated to achieve sizeable agricultural growth by the end of the Plan period. This information was given by Shri S. B. Chavan, Minister of Planning, at a recent meeting of the Consultative Committee attahed to his Ministry.

Shri Chavan said that under the system, six groups of programmes will be integrated into the overall national and regional action plans. The programmes are : ecological security, introduction of a new Centrally-sponsored scheme of social forestry in 100 selected districts and promotion of school forestry programmes, breeding of high yield-cum-high stablity varieties in agriculture, integrated attention to post-harvest technologies and building up of grain reserves and strategies for production of commodities in short supply with a view to maintain price stability.

Central Aid for Goitre Control

THE Union Health Minister, Shri B. Shankaranand has asked the Chief Ministers of goitre-affected States to lend full support to control activities in their States. In a communication to them he has requested them to take full advantage of Central scheme to supply plants for iodisation of salt free of cost. Each such plant has a capacity of about 24,000 MTs of idoised salt.

Towards Self-employment

THE District Rural Development Agency of Silchar had sponsored a six-month rural self-employment training at Nayagram under Lakhipur Development Block. Twenty four rural girls of poor families were imparted training for six months in knitting, sewing etc. They were also given stipends of Rupees one hundred each per monh and the cost of raw materials used by trainees during training period.

Now A Richer Compost

FARM wastes, rich in organic matter and plant nutrients, can play a bigger role in helping improve farm productivity without causing imbalances. The ideal way to recycle the nutrients contained in the farm organic wastes is to process them into compost. To help the farmers get the full value of the compost, researchers have been carrying out experiments for the last four years under different climate conditions. As a result, a method of composting has been standardized.

One of the findings is that when the culture of suitable fungi, at 500 gm per tonne of the material for composting is added the decomposition rate is speeded up. Fungal cuture is available with microbiology labs attached to Research Institutes. In case fungal culture is not available, fresh dung slurry at 10 per cent by weight of the material can be used as a starter culture.

Waste of rice straw, maize stalks, mustard straw, sugarcane trash need to be chopped to ensure rapid and efficient composting. The quality of compost can be improved by adding one to two per cent rock phosphate and 0.25 to 0.5 per cent nitrogenous fertilizer.

Treating this partially decomposed compost with the culture Azotobacter alongwith phosphate solubilizing micro-organisms, enrich the compost further.

Development of 200 Towns

THE Union government is planning to develop 200 towns with a population of less than one lakh during the Sixth Plan as service centres to the rural hinterland to reduce the rate of migration to large cities.

The centre and states will contribute 40 per cent each of the total investment required and the remaining 20 per cent will be shared by financial institutions The size of the project eligible for Central assistance would not normally exceed Rs. 1 crore. The government has already taken up construction of about 31 towns and 200 more are expected to be completed before 1985. A total plan provision of Rs. 96 crore has ben made for this scheme in the Central sector and an equal amount will be forthcoming from state governments and implementing agencies like municipalities, improvement trusts and urban development authorities .

Tree Planting at Bhilai

The Oxygen Plant of Collective Bhilai Steel Plant have embarked upon a truly worthy venture of tree-plantation within the compound of their shop. Though they already have a fair number of trees, they have resolved to have every employee of the department plant one tree during this season. At the first ceremonial planting, 50 trees and potted plants were planted on March 19, 1981. This leaves 70 more employees to 'adopt' trees and plant.

STEP

BY

STEP

Import Substitution Achievement by BHEL

THE first 20 MVA power transformer with aluminium winding manufactured by Bharat Heavy Electricals Ltd., Bhopal, has been energised and put into service at the Chambal Sub-Station, Bhopal of Madhya Pradesh Electricity Board.

This is the first time when copper conductor is replaced by aluminium conductor in power transformer of this rating and voltage class in the country.

In this 20 MVA (132 KV) transformer copper has been replaced by aluminium which is abundantly available in the country itself. This national achievement in the field of import substitution is a major break-through in power transformer technology.

Indian Private firm Bags Iraq contract

AN Indian private firm has been awarded a contract to build the Headquarters of Director General of Police at Baghdad by the State Organisation of Buildings, Ministry of Housing and Construction, Government of Iraq.

The Delhi based, Indian firm, Engineering Construction Corporation Ltd., was able to secure this order against severe competition from international agencies.

The construction of the twelve-storeyed structure will be completed in 30 months' period. The contract is valued at about 45 million American dollars.

Handicapped but not helpless

TWO brothers, Kartar Chand and Om Prakash, now aged 26 and 23 years were born in a backward community of Poonch district in Jammu and Kashmir State. Through sheer hard work they have established a school for teaching music and also formed a 10-member cultural troupe for conducting variety entertainment programmes. Kartar Chand is gifted with melodious voice and sings well especiallly gazals' and folk songs. He can also play on a few musical instruments.

F.P.O.
Poonch

Arresting the Seepage of Irrigation Water

THE West Bengal Government has begun making use of flexible lining with low density polyetheylene film in irrigation channels to arrest the seepage of water in the conveyance system. In the conventional channels lined with bricks and cement 40 per cent of the available water is lost through seepage. A Rs. 20 lakh project involving this new method is now under execution in Kangsabati canals in Jhurgram Subdivision of Midnapore district. The method has tremendous potentiality to extend irrigation facilities with the existing infrastructures.

New Process for the Production of Sponge Iron

THE Central Fuel Research Institute, Dhanbad has developed a new process (Plant filed) for the production of Sponge Iron. While known technologies involve reduction of iron ore by gases generated by gasification of coal or charcoal, in the CFRI process no external reductant is necessary. Further CFRI process does not involve fine grinding either of the iron ore or the reductant non-cokig coal as against the normal practice of fine griding of iron ores before its pelletisation and subsequent reduction. In this novel process, the reduction is intrinsic and takes place in the briquettes pallets or extruded shapes made out of the essential ingradients. This breakthrough has been possible by judicious incorporation of the reductant (coal) in the matrix of the iron fines in the form of preformed shapes which, when suitably treated in a furnace lead to production of sponge iron lumps of desired shape, size and weight. The sponge iron is suitable for charging into blast furance or directly into steel making furnaces.

Suitable Bricks from Unsuitable Soils

THE Central Building Research Institute Roorkee has evolved a process yielding bricks conforming to Indian Standards specifications, from inferior red murum and black soils of Ramagundam Area in Andhra Pradesh. The process has been adopted by local brick manufacturers, who have manufactured about 12 lakh bricks so far. They are now supplying these bricks to N.T.P.C. and other private and public unidertakings for their civil construction works. The CBRI process has resulted in a saving of 2 tonnes of coal per lakh of bricks. The process consists of mixing with the soil 20—49 per cent fly ash and 0.3 to 0.4 per cent (by weight) of common salt, followed by firing in the range of 1000—1020°C and docking.

Railways Earnings Up by Rs. 30 crores

RAILWAYS have earned Rs. 30 crores more by way of freight and passenger earnings for the first quarter ending June this year.

On the freight front, the Railways loaded 3,14,300 wagon more than those loaded in the corresponding quarter last year. This additional loading has helped the Railways achieve an aggregate of more than 7 million tonnes of revenue-earning freight traffic in comparison with the first quarter of last year.

BOOKS

Joint Ventures

Joint Ventures—A New Technique for Industries Growth by Dr. Ram K. Vepa; published by Manohar Publications, ew Delhi-5, 1980; pp. 220; Price Rs. 70.

PERSONS doubtful of a successful partnership between a Government agency and a private entrepreneur must find this book a compulsive reading particularly about how joint ventures can really work wonders if implemented with a right mix of patience, perseverance and prudence by both the parties involved. The author who is at present the Development Commissoner, Small Scale Industries, Government of India has profusely drawn from his earlier experience as the Managing Director of the Andhra Pradesh Industrial Development Corporation (APIDC) and presented a valuabe monograph on the subtlities that surface in the relationship between a Government agency on the one hand and an entrepreneur on other hand when they are locked together in a joint venture.

The book under review is mostly about some fifty odd such joint ventures in operation in APIDC. The author admits in his foreward that though joint venture pattern has not always been successful, the experiment offers sufficient guarantee for emulation by the rest of the country and some developing countries too. He rams home the theme that what is essential to success is the attitudinal factor on both sides—the Government agency as well as the private party and the right postures they bring to bear in the runing of such ventures. There is a grain of truth in the author's avowal that "joint ventures will succeed only if both recognise the importance of the other instead of exaggerating one's own role in them".

As any inadequate appreciation of the immense difficulies entrepreneurs face even in seemingly trivial matters is bound to bring down their ardour, suitable project identification and other relevant needs of the entrepreneur must be looked into by the development agency in a pragmatic manner. Selection of a co-promoter is challenging exercise as the success of a joint venture is largely determined by the degree of rapport and understanding that exists between the Chairman (a nominee of the development agency) and the Managing Director (the entreprenur himself) of the company. Besides, constant monitoring by the promotional agency of the performance of the company is a pre-requisite for the success of joint ventures so that any malpractice is nibbed in the bud.

The book briefly touches upon a sample of a few projects of the APIDC joint-ventures ranging from glassware project, electrical (windingwise unit) particle board project, cold rolled steel strips project to electronic connectors. It also sets apart sufficient space for such eye-catching and emphatic topics as the problems and perspectives of joint ventures. An appendix enclosing a summary of replies obtained from joint venture co-promoters is a revealing illustration. Of the total of some 40 odd promoters addressed, the number of replies obtained was only from 26. Of this, about 22 entrepreneurs expressed a 'favourable' opinion about the overall disposition of the joint sector concept. This is a vindication of the need to spread this AFIDC's joint-venture concept to other parts of the country and to various other developing nations, who may have identical milieu for the propagation of this governmental and entrepreneurial cooperative culture.

In short, the book acknowledges the truism that given restraint and goodwill on both sides, the joint-venture concept will surely help to create a new feeling of understanding and rapport between Government and industry, which is vital for a healthy industrial growth and harmony.

G. Srinivasan

Public Utilities

Economics and Management of Public Utilities by N. Somasekhara, P.T.I. Book Company, Bangalore, Pages 204, Price Rs. 60.

THE subject of study is investment and pricing policies of The Bangalore Transport Service and the Bangalore Dairy. Both the undertakings render basic services to the people and their efficiency is a matter of general concern. This efficiency must be understood not only in terms of ensuring decent service at reasonable cost but also in terms of fair return to the enterprise. From both these angles the two Karnataka undertakings studied here fall short of the expectations.

The solution to the problem of the Bangalore City Transport Service suggested by the study is the replacement of old vehicles by new. Through the application of the Terborgh Model the author recommends replacement of vehicles as old as seven years or more and better routing schedule to reduce operating costs and improve profit margin. The study is based on the data for two years 1970-71 and 1971-72. One feels a little hesitant in generalising on the basis of experience of such a short period.

According to the Terborgh Model it is worth replacing an old vehicle by a new one if the "net productivity" of the latter is greater than that of the former. Thus every thing hinges on the definition of "net productivity". According to the author, the economic replacement period is seven years if the rate of interest is assumed to be 5 per cent. The assumption of 5per cent rate of interest appears conservative even by the market value of capital, let alone the social cost of capital. The Model used by the author for re-scheduling the routes is interesting and the results of significant practical utility.

The author finds that the losses of the Bangalore Dairy were due to under-pricing of most of its products. The remedy to this is upward revision of prices. The real difficulty with most of the public undertakings is that, though their products are known to be under-priced, the social and political compulsions against upward revision are too great to resist. The author even makes the suggestion that the prices of milk products should be adjusted keeping the seasonal fluctuations in demand and supply. He does not realise the practical difficulties in revising prices every three months. However, the author has done well in indicating the scope for reduction of costs and increase in efficiency through such measures as an optimum product mix, more efficient procurement operations etc.

M. R. Kulkarni

Welfare of the Disabled in Karnataka

(Continued from Cover II)

whose family annual income does not exceed Rs. 3,600 Under this scheme more than 15,000 disabled persons have got the benefit.

Orthopaedically handicapped and blind Government employees get five per cent of their basic pay subject to a maximum of Rs. 40 as monthly conveyance allowance. The salaried or wage earning blind persons have been exempted from payment of professional tax. Blind persons have been allowed free travel in buses in cities while in the mofussil areas they get 50 per cent concession in travel charges. Reservation in Government services has been extended to even Class I and II posts. Earlier it was restricted to only Class III and IV categories of employment.

Thirty voluntary institutions are promoting the welfare of the disabled by receiving financial assistance from Government.

Future Programmes

One more school for deaf children is proposed to be established in Bellary for which a budgetary provision of Rs. 3 lakh has been made in the current year.

For giving medical treatment for the disabled, three transit homes are being established in Bangalore, Belgaum and Gulbarga with the intake for each fixed at 50 patients.

It is also proposed to open one hostel for men and other for women for the benefit of the disabled persons undergoing training in various vocations. Both will be located in Bangalore.

Under another scheme approved by the Government, disabled entrepreneurs will get seed money from the Social Welfare Department. The Karnataka State Financial Corporation has come forward to provide loan assistance for promoting self-employment among the disabled in small scale units like tailoring, carpentry, printing etc. The loans cover working capital and machinery cost.

A Physically handicapped person receiving training in a workshop

Help to H.P. Handicapped

IN Himachal Pradesh, the Welfare Department gives an allowance of Rs. 50 per month to all the disabled persons having an annual income upto Rs. 600. The Orthopaedically handicapped pesrons get new artificial limbs or old ones repaired at half the cost if their monthly income is between Rs. 301 and Rs. 600 and free of cost if they earn less than Rs. 300 p.m. Home for the Handicapped is being constructed at Sundernagar at an estimated cost of Rs. 14.67 lakhs. This Home shall have facilities for treatment of the physically handicapped. A workshop for fitting the artificial limbs and a vocational centre shall be attached to this Home.

Scholarships to blind, deaf and orthopaedically handicapped students for general education and, for technical or professional training are awarded. The amount of the scholarships varies between Rs. 40 and Rs. 125 per month and is available to the students whose parents/guardians' combined income is not more than Rs. 750 p.m. (for ninth standard onwards) Rs. 450 (for 1st to eight standard). The Indian Council for Child Welfare, HP Branch runs three school-cum-homes, one at Dharamsala for the Physically handicapped two at Dhalli for deaf. dum and blind children.

In Gire Industries Training Institute and the Rural ITIs and Tailoring Centres 5 per cent seats have been reserved for the handicapped. Three disabled persons in each block will be given training under TRYSEM. The handicapped persons with more than 50 per cent disability are allowed free travel by the Himachal Road Transport Corporation buses.

A special cell for placement of the physically handicapped has been set up in the Directorate of Employment and Training, Simla. Reservation of 3 per cent posts has been provided in class III and IV posts and services for the physical handicapped persons. Reservation of one handicapped person for every 15 employees has been provided in all the Public Sector Undertakings of Himachal Pradesh.

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A view of the Stall set up by the Publications Division, at the Third International Book Fair held at Moscow recently In the Foreground is shri D. S. Mehta, Director of the Division

Publications Division at Moscow Fair

The book—"Years of Endeavour"—speeches of the Prime Minister Smt. Indira Gandhi, for the period August 1969 to August 1972 brought out by the Publications Division, Ministry of Information and Broadcasting, has been tentatively selected for translation and printing in Russian language.

The Director, Publications Division, who represented the Government of India at the Third International Book Fair at Moscow in September says that he has signed option agreements with different Soviet Union publishers for six other titles. These are Indian Classical Dance by Kapila Vatsayana Biographies of Jawaharlal Nehru by Chalapati Ro and Rabindra Nath Tagore by Hiranmay Banerjee in the Biulders of Modern India Series; Rabindra Nath Tagore and Art Of His Times by Jaya Appaswamy; Art of Nepal by Amita Ray and the Last Tiger by Ruskin Bond.

The Publications Division sold out all the books which it took for the Moscow Fair.

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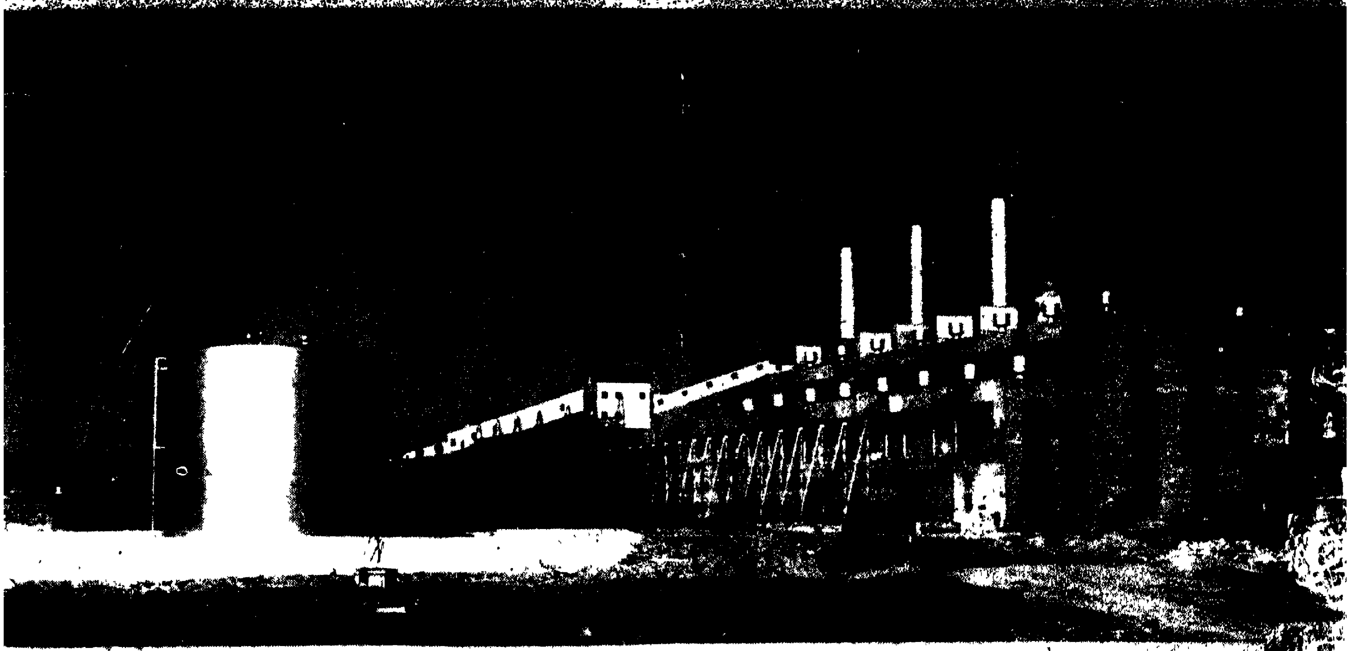
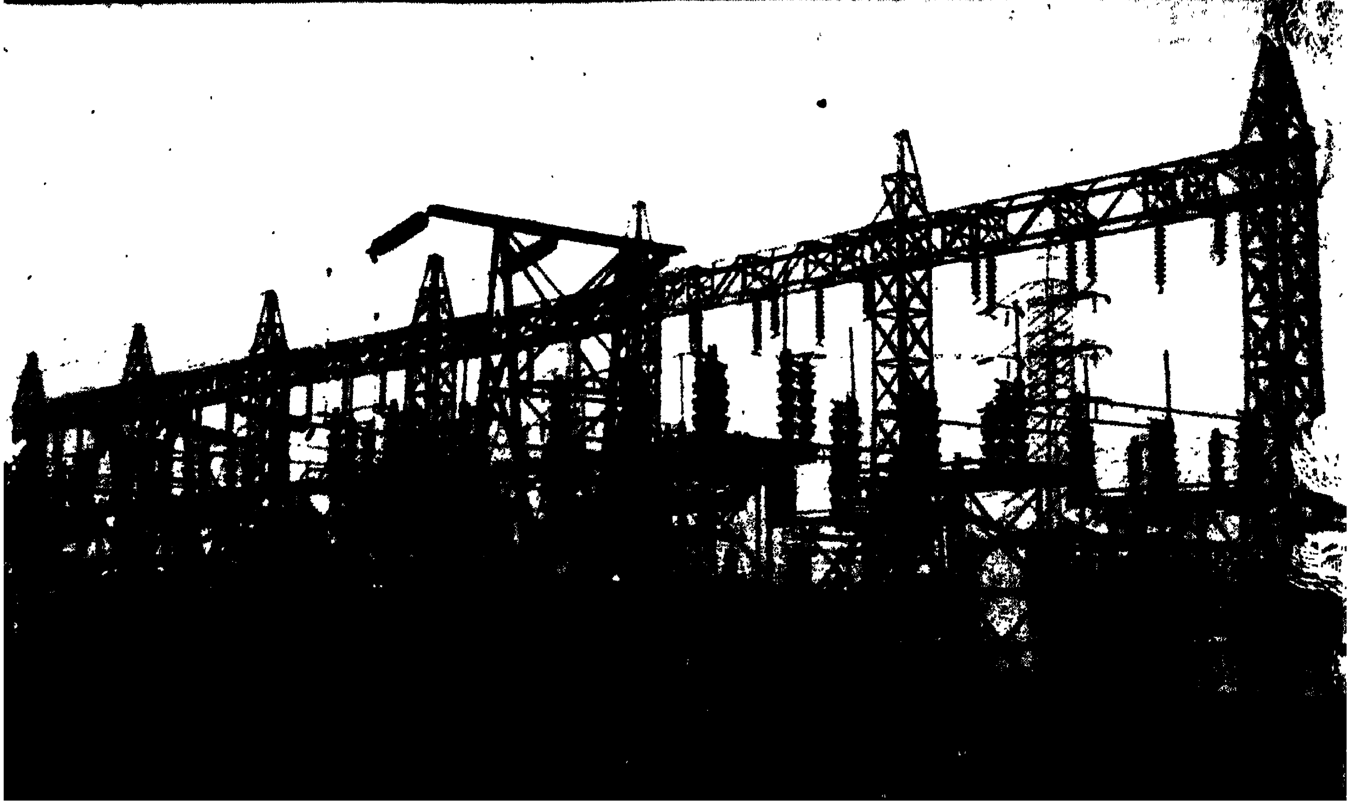
yojana

Jhumming vs Modern Farming

Energy Sector in the Plans





"Enabling the Disabled", an exhibition to mark the International Year of the Disabled, organised by the Directorate of Advertising & Visual Publicity, at New Delhi recently, was inaugurated by Kumari Kumud Joshi, Deputy Minister of Information and Broadcasting. The exhibition shows how, in spite of their handicaps, the disabled are able to carry on with different vocations.

Reservation for Handicapped

AS many as tewenty State Governments have made reservations for the physically handicapped persons including the blind from one per cent to four per cent in Group 'C' and 'D' categories. The Central Government has made reservation of three per cent for these categories of persons.

The State of Gujarat has made four per cent reservation, Orissa one per cent, West Bengal, Uttar Pradesh, Tripura, Rajasthan and Karnataka two per cent, and the remaining States three per cent.

Nine States have so far sanctioned an allowance to the physically handicapped including the blind under the old age pension scheme. The State of Bihar has given Rs. 30.00, Madhya Pradesh Rs. 60.00, Gujarat Rs. 30.00, Karnataka Rs. 40.00, Tamil Nadu Rs. 25.00, Tripura Rs. 30.00, and Union Territory of Dadra Nagar Haveli Rs. 50.00. □

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Editorial

Need for a National Outlook

THE problems connected with our irrigation system are of chronic nature and inspite of repeated exhortations they continue to persist. Most of the resolutions passed at the recent conference of State Irrigation Ministers are no exception to this. The conference has re-iterated its earlier recommendations for correct estimation and timely execution of projects, prompt arrangements for utilisation of irrigation potential, maintenance of irrigation works, proper drainage system, a master plan for flood control, etc. There are at present 71 Command Area Agencies and if they function properly there will be a tremendous improvement in the utilisation of irrigation facilities already created. The increasing cost and scarcity of construction materials like steel and cement seriously affect the execution of irrigation projects, and this can be tackled only through coordinated efforts of various Ministries and departments.

An important contribution of the conference is its proposal to set up organisations for dealing with the water resources of the country from a national angle. One such body would be the National Water Development Council, to sort out inter-State river disputes and to prepare a national water policy. This would require Central legislation and the Union Minister of Agriculture and Irrigation has clarified that it would be enacted only if all the States agree to it and that even afterwards water would continue to remain a State subject. (At the conference, West Bengal and Kerala expressed some reservations about this proposal). Another organisation suggested is the National Water Development Agency for carrying out surveys, investigations and studies of the country's rivers—to start with, the rivers of the peninsular area. Kerala, Karnataka and Orissa have reservations even about this idea. Many projects could not be taken up due to inter-State disputes, pending which enormous quantity of water is going waste and a large power potential remains unharnessed. It is high time that the utilisation of water resources is taken away from the hands of parochial-minded politicians and entrusted to engineers and economists. This is easier said than done and unless the politicians of all the major parties arrive at a consensus, it will not be possible to achieve this under the present democratic system. The proposed national bodies will be ineffective if they are not armed with adequated powers. The inequitable distribution of irrigation water in many areas and hesitation to introduce warabandi system for this purpose and the continuation of low irrigation rates are also based on political considerations of placating the rural rich. This problem should be solved with the requisite political will.

It is true that with the present potential of 59 million hectares, India has the largest area under irrigation in the world. But even this is only one-tenth of the total potential. The Sixth Five Year Plan has fixed the target of 15 million hectares out of which the first year's achievement is estimated to be 2.44 million ha. It will require re-doubled efforts to achieve the rest of the Plan target.

But the pace of creating and utilising additional irrigation and hydel-power facilities and of checking recurring flood damages can be quickened if a national outlook is developed among our people and political leaders. ☐

25 Years of State Trading Corporation

Gopesh N. Mehra*

EVER SINCE it was set up in 1956, the State Trading Corporation has emerged on the Indian economic scene as the largest export house and an agency for canalised import of items of general consumer interest.

The birth of STC is attributed by its erstwhile Chairman Mr. Prakash Tandon to the request, first of the Chinese government and later of the Soviet Government for the setting up of a Central Government agency with which they could easily enter into bilateral trade agreements and thereby avoid dealing with a horde of private parties.

The Chinese agreements, Mr. Tandon points out, came to an end with the war in 1962 but the Russian bilateral trade continued, considerably re-inforced by other East European countries till it formed a substantial part of Indian imports and exports.

The STC found acceptance with most of these countries because they could sell to India products not sophisticated enough for the European market and buy from India commodities and products without using their hard-earned foreign exchange and enable this iountry to have arress to their plants and equipment for which India did not have enough free foreign exchange since most of its reserves had been used up in importing food from the US.

Being the only government agency engaged in this barter-type trade, the STC was allowed to enter new fields and even new markets in the West, particularly for the purposes of procuring essential materials for the upkeep of Indian economy. It was this enlarged role entrusted to the STC which enabled it to achieve an all-time high level of turnover in 1980-81 when it crossed Rs. 1,677 crores. This represented a marginal increase of 9.6 per cent over the turnover of Rs. 1,529 crores in 1979-80.

The working results of STC showed that the increase in turnover was largely because of the expansion in import sales. Though non-canalised exports marginally increased there was a decline of Rs. 198 crores in the exports of canalised items due mainly to the non-availability of sugar for exports.

This performance of STC recently encouraged the Commerce Minister Pranab Kumar Mukherjee to remark that it (STC) could look back with genuine pride over its performance during the last 25 years. Making this point at the Annual General Meeting of the Public Sector Undertakings, Mr. Mukherjee went on to say: "A trend-setter and a dominant organisation in India's international trade, the government looks upon STC as a major instrument for implementing its foreign trade policies."

To fully appreciate the performance of this really dominant organisation which has tended to grow into a monolithic structure, it would be proper to first study its export performance which was the primary aim for which the organisation was established.

Exports

The export earnings of STC for 1980-81 are provisionally put at Rs. 461 crores as compared to Rs. 636 crores last year. The decline is attributed to restricted supply of certain export items like sugar and molasses and depressed market conditions for others like coffee, castor oil and semi-processed leather. It is further pointed out that the decline in exports was mainly in respect of canalised items. The canalised exports fell from Rs. 420 crores in 1979-80 to Rs. 222 crores in 1980-81. Major decrease was in respect of items such as sugar (Rs. 84 crores), semi-processed leather (Rs. 68 crores), castor oil (Rs. 18 crores) and molasses (Rs. 23 crores).

During the year, only 87,000 metric tonnes of sugar valued at Rs. 45 crores could be exported because of the government not releasing much of levy sugar for export purposes due to scarcity conditions inside the country. The government subsequently imposed a ban on export of sugar on February 21 last. There was a distinct advantage of world market prices during the year with a rate of Rs. 4856 PMT as against Rs. 2268 PMT which was available last year. It was in this context of sugar ban that the STC invited huge penalities for default in fulfilling a contract with a UK firm for supply of about two lakh tonnes of sugar. Before the ban came the STC had been able to supply only about 60,000 tonnes of sugar and according to the penalty terms it was required to shell out an amount of £2.3 million (Rs. 4.6 crores).

Even at Rs. 228 crores achieved in terms of exports, the STC's performance measures upto only about 4 per cent of the total exports from India. The increase in exports last year was hardly 5 per cent over the 1979-80 achievement. It has been argued that since the prevailing inflation rate was about 20 per cent on an average, the real value of STC's non-canalised exports fell far short of the original target of Rs. 280 crores for 1980-81. It is also argued that STC's present performance does not befit an organisation which has as many as 18 offices abroad and 14 branch offices in the country manned by more than 110 executives drawing salaries more than Rs. 3,000 per month. The aggregate wage bill of the PSU is estimated at Rs. 5 crores and administration and promotion expenses pegged at Rs. 7 crores.

The current year's performance showed a marked improvement in the exports of non-canalised items which increased from Rs. 216 crores in 1979-80 to Rs. 239 crores in 1980-81. This increase was in respect of items such as rice, tobacco, jute goods, instant coffee, footwear and components, readymade garments and other consumer products. The Corporation reportedly made a determined effort during the year to find export markets for new items and

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Special Correspondent, UNI

to diversify the markets for existing products as well as several new items such as physical education equipment, sports wear and shoes to Iraq; bicycle chains to Vietnam; guava juice and papaya slices to USSR and orthopaedic shoes to USA. Among new areas explored for boosting exports were Seychelles, Iraq, New Zealand, West Germany, USSR, Switzerland, Singapore and Algeria. According to Mr. Abid Hussain, the new Chairman of STC who is also secretary in the Ministry of Commerce, the Corporation gave special attention to various promotional measures like making improvements in quality, grading and packaging and providing infrastructural facilities to the export units. In this campaign the Corporation arranged supply of leather, soling materials and imported sole and elastic to shoe manufacturing units; organised production of machine grade shoe lasts centrally in order to standardise their size|fittings and widened its circle of business associates, services of Small Scale Services Institute to identify units with export capacity for enrolling them as its associates and to make centralised arrangements for supply of packaging materials like boxes, cartons and labels for export of various items. The STC also extended financial assistance upto 30 per cent to tanneries, fabricating units by way of import of machinery under the leather development assistance scheme.

In its tentative five year plan prepared for long range operations, the STC has called for an increase in non-canalised exports to Rs. 500 crores in 1984-85. The plan envisages an increase in agricultural exports from Rs. 145 crores to Rs. 300 crores and manufactured products' exports from Rs. 70 crores to Rs. 200 crores in 1984-85.

While commenting upon the performance of the Corporation the Commerce Minister Pranab Kumar Mukherjee was also quick to laud STC's efforts in promoting the consortium approach for generating greater exports of the small scale sector. The Sixth Five Year Plan envisages doubling of exports from this sector from the present level of Rs. 1000 crores to Rs. 2000 crores. According to Mr. Mukherjee the small scale units being dispersed in various parts of the country with varying standard of performance require a close and continuous review, guidance and supervision. He was confident that STC would continue its promotional efforts in this direction and thereby earn the goodwill of the small scale sector. As a premier trading organisation, STC has symbolised hopes and aspirations of the government particularly with regard to meeting the target fixed for exports in the wake of sizeable imports of POL, food and other essential items. It has been argued that STC's leadership role should be adequately reflected in the magnitude of its turnover, diversity of the products handled and efficiency in operations both in terms of costs and quality. Mr. Pranab Mukerjee observed that while STC had shown an impressive growth in magnitude of its turnover, the need for diversity of operations and improved efficiency still continued to exist. He said a trading organisation which was dealing with monopoly items had special responsibility to secure a balance between operational efficiency and quality of service. This would imply maximising of turnover along with maximising of profit and minimising costs.

In this context it is pertinent to learn that the Corporation contributed Rs. 3 crores to the government exchequer by way of dividends and Rs. 37.50 crores by way of taxes on its performance for the year 1980-81. In the 25 years of its existence STC's contribution directly to the national exchequer has been Rs. 231 crores as corporate taxes and Rs. 24 crores as dividend. It issued bonus shares several times totalling Rs. 13 crores. The equity capital of the corporation has risen from Rs. 1 crore in the year of its inception to Rs. 15 crores now. The financial results reveal that the trading profit of STC during the year increased from Rs. 62.3 crores last year to Rs. 64 crores during 1980-81.

Imports

The value of imports by STC far outpaced the exports. This was primarily because of the tight availability of critical items such as edible oils, newsprint, sugar, cement and white printing paper in the domestic market. Import turnover of the Corporation touched new heights at Rs. 1214 crores during 1980-81 as against Rs. 884 crores worth of goods imported by it in 1979-80. The import of edible oils alone during the year reached a level of 11 lakh metric tonnes as against 8.4 lakh MT in the previous year. The increase in these imports, according to Corporation Chairman, was largely due to increased requirements under the Public Distribution System from 2.68 lakh MT to 4.56 lakh MT. Similarly, the quantities made available to the vanaspati units also increased from 4.74 lakh MT in 1979-80 to 6.08 lakh tonnes in 1980-81.

Such heavy imports necessitated maintaining of buffer stocks for which STC maintained 4 lakh MT of storage capacity in various port towns and inland destinations. Edible oil operations of the Corporation today include not only import storage, movement and distribution but also refining and tinning arrangements for supply to the Public Distribution System Besides oils, the Corporation imported 19.3 lakh MT of cement, 1.81 lakh MT of sugar, 3.18 lakh MT of newsprint and 59,000 MT of white printing paper to meet the domestic requirements of consumers and industry.

Weak Points

While the decision to import these essential commodities was motivated by the concerned Ministries of the government the distribution policy of the Corporation was subject of critical comment in public and press. One of the factors contributing to it has been a certain lack of understanding in the Corporation about the behaviour of International markets and ruling prices. There have been occasions when failure to import an item timely or delay in proper disbursement has led to crises in domestic markets as was seen in the case of vanaspati industry. The rubber industry and newsprint users have also expressed doubts about the efficacy of the Corporation to handle these items with any degree of imagination or efficiency. It has not been able to evolve any machinery to accurately gauge the domestic demands of these items and consequently gear itself to meet them in time in order to avoid controversy or crises. Edible oil imports and distribution have been perhaps the most outstanding examples of Corporation's muddled operations.

It was this aspect of Corporation's functioning whish promoted Mr. Mhkerjee to remark recently that there was need for the Corporation to play a more positive role in ensuring stability of prices of mass consumption items where fluctuation in supply necessitates import or export of these items on government account. The Minister pointed out that till now STC had been carrying out this work, more or less, on an ad-hoc basis as and when called upon by the government to do so for meeting emergent situations. He expected an organisation such as STC which is equipped with a network of foreign offices and an abundance of managerial talent to monitor suitably the supply and demand situation of such items and provide advance information to the government so that corrective action could be taken well in time. It has been well recognised that for an organisation like STC to function efficiently, speed in decision-making and a rigorous monitoring of executive performance is of paramount importance. For this it is necessary to strengthen not only management services but also maintain a data bank of uptodate commercial intelligence. The Commerce Minister felt that well thought out delegation of powers and responsibilities could help in hastening the decision-making process on the part of the Corporation. But he regretted the tendency fast creeping into these organisations of pushing up the decision-making process to higher levels and getting involved in a culture of files rather than action.

In this context it is pertinent to point out that the Government itself has erred greatly in keeping such a gigantic organisation with such crucial and multifarious functions of urgent public importance rudderless for such a long time. The Corporation officials themselves publicly admitted recently that STC's functioning had deteriorated greatly as a result of mismanagement at the top level. It was held out that it was not because of any lack of talent but of leadership that this giant public sector undertaking was drifting wildly and often without purpose. They also regretted that personnel relationship within the corporation had been brought to a very low level and there was frequent political interference in crucial appointments. In this atmosphere was it possible to mould the attitudes of its employees by factors like accountability, responsibility and authority in decision making or promotional policies and appraisal systems ?

After 25 years of functioning of the Corporation it was indeed interesting to listen to Mr. Mukerjee's advice to STC Board of Directors that they should now prepare a perspective plan for the Corporation which should lay due emphasis on its developmental role as also the role associated with achieving social objectives. The Minister was also keen that STC should function as government's field agency in the market and make available to it timely information on developments in international markets which were likely to affect the economic conditions significantly. It was specifically directed to engage its attention towards preventing malpractices, abuse and profiteering.

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The Jhumias of Karbi Anglong

P. N. Rau*

GREEN revolution has taken root in Haryana and Punjab and is spreading all over the country. Strangely, in India, some people have never heard of this revolution even today. A typical instance is that of the Karbi hill tribals who live in the interior-most areas of the Karbi Anglong District of Assam. They, numbering two lakhs, live in the hill district over an area of 10,000 sq. km. Most of the area comprises hills and thick forest. Roads are few and villages are small and widely scattered. Most of these villages can be reached only by foot, through dense jungles.

Scantily dressed, these people are the Jhumias or the shifting cultivators of Assam. The Jhumias are happy in their own way because they do not know better. They raise hill paddy, maize, chillies, pumpkins, gourds and mustard on the slopes of the hills which they clear by burning the trees before the onset of monsoon. Needless to say, the yield is very low.

The soil is so fertile that if modern farming practices are adopted, the yield will increase by tenfold. But the surplus yield will have to be sold to the local trader at uneconomical price. Thus the care-face and self-sufficient Jhumias will come under the thumb of some unscrupulous traders. Here comes the important role the Indian Council of Agricultural Research has to play.

Composite Programme

The Government of Assam has launched a serious drive to wean away 40,000 Jhumia families in the Karbi Anglong and North Cachar Hills districts of Assam from jhuming. The "Composite Programme", as it is known, was launched at the beginning of the Fifth Five Year Plan. The Central Government allocated Rs. 12 crores in the Plan. The programme has been carried over to the Sixth Plan also. Being a multi-disciplinary activity, the Departments of Soil Conservation, Forest, P.W.D., Agriculture, Irrigation and the Assam Plantation Crops Development Corporation (APCDC) are all actively involved in the programme. The Development Commissioner for the Hill Areas of Assam is the co-ordinating agency. The role of the APCDC forms the key-stone of the whole scheme. According to the programme, the Corporation has to establish coffee and rubber plantations over 8,000 hectares in the hill districts of Karbi Anglong and North Cachar Hills. Till now, they have set up 16 plantations covering an area of about 2000 hectares only.

A Karbi woman carrying cotton to a village market

The Agricultural Refinance Development Corporation has to finance the establishment of the plantations using jhumia labour to the maximum extent possible. After the Corporation has recouped its entire investment, the plantations will be transferred to the jhumia labourers who will thereafter become the owners of the plantations. These jhumias will by then have acquired sufficient experience in looking after them. Then the Corporation will become a mere servicing agency and provide inputs, expert advice and marketing facilities.

The pay-back period for the Corporation is about 20 years, and the life of a plantation is about 40 years. During the pay-back period the jhumia works as a labourer prior to becoming the actual owner of a part of the plantation (2 hectares per family). For his subsistence, in this period, he has to be provided some developed land near the plantations where his family members can grow crops to feed the entire family.

Here comes the role of the other departments. The Soil Conservation Department is to develop cultivable

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*Secretary, Indian Council of Agricultural Research.

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land adjacent to the plantations. They will be distributed among the families of the jhumia labourers. The Department of Agriculture will supply inputs such as pesticides, fertilizers, improved seeds etc. Simultaneously the Irrigation Department will develop nearby water sources for providing irrigation facilities. Allotment of such developed plots would be made by the local autonomous District Council. The Forest Department develops the social forest around the area. They raise quick growing species employing the jhumias as labourers. The established forests provide fuel and fodder. The PWD has to create the infrastructure for the plantations, land and forests developed by the other agencies.

Apart from the Composite Programme, some other schemes, like Jhumia Orchard Scheme and two integrated pilot projects, have also been taken up to uplift the tribals. Basically these programmes are well concerved and also result oriented. Yet they have not been very successfully implemented for various reasons.

Firstly, the Corporation has found that the concept of working as a labourer or "coolie" goes against the vary psyche of a Jhumia. It is below his dignity. So the jhumias do not care much to work in the plantations and if at all they work, it is for short periods only. Faulty allocation of developed land to the jhumias has been found to be another constraint. The jhumias who work or are prepared to work in the plantations of the Corporation as labourers are not getting the developed land for cultivation, next to the plantations where they work. The Irrigation Department's schemes for irrigating such lands take a long time to fructify with the result the developed lands are abandoned by the allottees because the lands are no better than their traditional jhumia plots The net result of all these factors is that even where a jhumia agrees to take up a daily-wager's job in a plantation or is allotted a plot developed by the Soil Conservation Department he ensures that the other members of his family continue to practise jhum cultivation

A Solution

Here is a new philosophy which may be a better approach to the problem. The very first thing to do to wean away the jhumias from shifting cultivation, is to make them shed their basic fear of exploitation by middlemen and traders if they are not self-sufficient by producing only one crop. Provision of assured market where they get reasonable price for the crop will create confidence. The Government may introduce the system of collecting the produce grown by the jhumias, if not from every village, at least from purchase points established within say 10 Km. from every village. Such collection of the grain should be done very regularly during the harvesting season at least, say every 10-15 days. Apart from this, through wide publicity the jhumias should be told well in advance at what price their crops would be purchased. The possibility of setting up such purchase points on a cooperative basis could be explored. Such purchase centres can be set up only when a strong infrastructure is built up. Transport facilities should be strengthened or established to reach interior purchase centres, from where the produce is purchased.

Once a jhumia comes to understand and believe that whatever he produces—crops, handicrafts and so on—have a ready market free of uncertainty, then he can be persuaded to grow single crop using modern agricultural practices. Similarly, subsidiary occupations like rope making, basket making, and so on can be propagated among the tribals. Similar approach was successfully adopted in the Sukhomajri. Project implemented by the ICAR near Chandigarh to uplift the Scheduled Castes and Scheduled Tribes.

The concept of setting up interior purchase points and connecting them with the main roads through all-weather jeepable roads may be tried in one or two selected blocks in the first instance, in collaboration with the autonomous District Council. After experimenting for a short period, bearing the teething troubles if any, the programme may be firmly established till it is accepted as a viable and reliable way of life by the jhumias. Now the scheme may be extended to other areas, after making necessary modification depending on the experience. At that stage, other schemes acceptable to the jhumias in the new climate of confidence can also be thought of to diversify their tradtional occupations and make them more modern minded and progressive.

In conclusion it may be stressed that establishment of such markets is only the first small step towards an ambitious overall programme. This creates confidence in the jhumia's mind when he accepts new schemes based on latest technology introduced in his domain with the ultimate aim of opening new horizons of modern life to the jhumias who have been entrenched in age old customs and practices. ☐

All-Plastic Bicycle

A completely new type of bicycle which cannot rust and requires practically no maintenance has been developed by the Gothenburg firm of Itera Development Centre AB with the backing of Volvo and other companies. Virtually every part represents an innovation and is patented or of protected design.

The lightweight bicycle is of unisex design and made almost wholly of ultra-hard composite materials of the type used in the space industry. Hardness tests conducted have shown that the frame, front fork, and wheels are appreciably more durable than the same parts on conventional bicycles The lamps are driven by a new 6 volt elecric system. The central battery unit and all cables are housed within the frame. The risk of punctures has been reduced by 75 per cent by coating the inside of the high-quality tyres with super-elastic plastic which is extremly hard to pierce.

The Itera bicycle, which is extremely comfortable to pedal, is available in both normal and sports models and with a choice of one, three, five, six, 10 or 12 gears. It will be delivered semi-assembled in a package for final assembly by buyers or bicycle retailers, a system designed to save space and solve distribution and storage problems. Accessories include packing boxes, safety seats for babies, etc.

—SIP

Photograph Identity Cards for Electors

I. K. K. Menon*

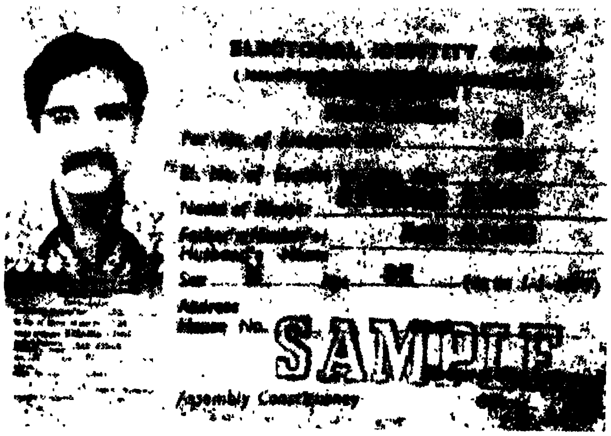
IT has been decided to issue Identity Cards for electors and the cards will be introduced gradually for future elections. North-eastern States have decided to go ahead with the preparation of identity cards. Nagaland and Meghalaya have already started the work. The scheme was first tried on an experimental basis in the last general elections in Sikkim, held in 1979.

The Identity Card contains the name of the State, part Number of the Electoral Roll, Serial Number of the elector in that part, Name of the elector, Father's, Mother's/Husband's name, sex, age, address showing the House Number and finally the Assembly constituency to which the elector belongs. The card will be signed by the Electoral Registration Officer concerned. A photostat copy of the Identity Card with photo will appear on the left side of the identity card to prevent any foul play.

Role of Photography

With the introduction of electronic gadgets, photography has become more efficient and quicker. Within a matter of a few minutes hundreds of persons can be photographed. In Sikkim the work of photographing the electors and the preparation of a laminated identity card for each elector was entrusted to a firm in Calcutta. This firm used a special type of camera having the capacity for photographing 300 persons per hour. The camera was handled by a team of photographers sent by the firm. Convenient centres were chosen and electors were asked to come to these centres. Normally these were Panchayat blocks and intimation for this purpose was sent through the agency of the Panchayats to all the electors.

In Sikkim, the cameramen of the firm were moving from one centre to the other on different dates. The lamination of the card was done centrally at Calcutta. In the near future the State Governments will have to employ photographers for this purpose. It would be possible to raise sufficient number of photographers for attending to this work and completing it quickly. Each photographer may have to be assigned electors covered by 4 or 5 polling booths and they will be made responsible to take photographs of electors on the basis of finally published electoral roll. A photographer will be required to furnish two copies of an elector's photograph with a negative to the Electoral Registration Officer of each Assembly constituency. The lamination of the card will be done by a firm engaged in such work or simple lamination machines can be procured at different centres. In Sikkim the cost of one photograph identity card worked out to Rs. 2.50 a copy in 1979. It may be higher now considering the increase in the price of film and other materials—say Rs. 4.00 per card.



Electoral Identity Card—a sample

India's firsts

India has many firsts in the election field and photograph identity cards will be one such. The decision to adopt adult franchise launched a great and fateful experiment unique in the world in its stupendousness and complexity. Never before had such a vast electorate gone to the polls. India was the first country in the world to introduce the system of symbols. Again, India is going to be the first conutry to use an Electoronic Voting Machine for election. Some countries, especially Communist countries, have prescribed Identity Cards for their citizens for purposes other than elections.

The photograph identity card is a fool-proof safeguard against impersonation, bogus voting or what is called 'rigging'. There are two types of 'rigging'; one is silent and the other violent. In the silent type, a number of persons who are not the real voters come and vote. Identity card will stop this malpractice. At the polling booths the polling officers will have a copy of the identity cards of each elector. When the elector shows his identity card, the officer compares it with the card he has with him. Ballot paper will be given to the elector only if he is convinced of the elector's identity. The voters identity cards can also be utilised for other purposes, such as issue of passports, ration cards and other facilities for which the identity of persons would be required.

Drawbacks

No doubt there are certain drawbacks in this system. The first one is the high cost involved. The preparation of Identity Cards is estimated to cost about Rs. 120 crores. But it may be offset in the long run by saving in indelible ink and reduction in the number of polling officers. The refusal of *pardanashin* ladies to be photographed will come in its way, but this will lessen with the passage of time and the advancement of education. When it becomes compulsory as in the case of a passport for instance, they will have to abide by it. Moreover, this objection will be prevalent only in certain areas and sections of people. Besides, the scheme is being introduced in phases, the first phase covering urban constituencies, the second semi-urban and the third rural constituencies. Another drawback is the general lethargy of voters to come to one place for the purpose of being photographed and also for receiving their Identity Cards. But people are becoming more and more vote-conscious and they may not mind it, especially when it is a question of losing one's right of franchise. Things will also improve in course of time when arrangements could be made to take photographs of electors and supply the cards at their door.

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*Former Secretary to Election Commission

The indelible ink mark, which is put on the left forefinger of an elector before he goes to vote in order to prevent him from voting for a second time, has become ineffective. Time and again, it has been demonstrated that it could be erased by the application of a chemical solution. Impersonation is an evil which cannot be tackled in any other way. The samll difficulties in implementing the system of photograph identity card will have to be overcome for the save of free and fair elections.

KVIC's Carpentry and Blacksmithy

Dr. Zia Uddin Khairoowala[*]

INTRODUCTION of power and stress on mechanisation have given carpentary and blacksmithy, a new dimension. The village carpenters and blacksmiths are now required to produce small modern tools of agriculture and assembly, for repairs and maintenance of new types of equipment used in agriculture, construction and a host of engineering industries and transport equipment.

Khadi and Village Industries Commission took up the job of training and upgrading the skill of the traditional artisan, in 1959-60. In the beginning, it was helping to manufacture tools and equipment required for Khadi and village industries. From 1965-66 the scope of the programme was enlarged to cover tools, equipment required for agro-based industries and the other ancillaries connected with the construction activities.

Modernisation of these industries is based not only on building up a suitable organisation to look after the raw material, tools and marketing needs but also to improve their production techniques through proper training. The commission arranges for such training of carpenters and blacksmiths and financial help on easy terms.

It is hoped the Commission will provide employment to nearly 1.62 lakh persons during 1978-79 to 1982-83.

Production

The production of goods by carpenters and blacksmiths has increased from Rs. 0.96 crore in 1968-69 to Rs. 12.42 crores in 1977-78, showing an over all increase of 1,194 per cent. It is also estimated that the production will go up to Rs. 71.96 crores during the year 1982-83. The production from carpentary and blacksmithy is much higher than the production from all KVIC's items

The earnings from carpentry and blacksmithy have increased from Rs. 0.22 crore in 1968-69 to Rs. 3.64 crores in 1977-78.

Prospects of Industries

The scope of expansion of carpentry and blacksmithy activities can be gauged from the large investments, that are being made and planned on various types of housing schemes and manufacture of agricultural implements.

A sufficient number of artisans should be grouped into co-operative and other forms of organisations so that concerted efforts could be made. Marginal Farmers and Agricultural Labourers Agency (MFAL), Agro-Service Centres and Credit and Marketing co-operatives are suitable agencies with which these artisans could be linked. Institutional credit has not yet reached these artisans. In view of the immense scope for the development of these industries, all the possible avenues of providing them institutional credit through all these agencies should be explored. Such credit would have to be an integrated, supervised credit, if the needs of the development of these industries are to be properly and adequately met. Unless some initiative is taken by nationalised banks in this direction, not much progress will be made in helping these artisans.

Apart from encouraging these artisans to produce agricultural implements and equipment for village industries they can also be provided with opportunities to engage themselves in producing such materials as beams and refters, doors and windows, grills and frames, decorative and artistic handicrafts, furniture and interior decorative material. ☐

[*] Assistant Professor, New College, Madras

Cover Story

Development of Energy Sector

Subhas Chandra Bose*

WE have been giving much importance to the development of our energy sector under the Five Year Plans. How energy sector has been developing to occupy the No. 1 position can be seen from the following table :—

Table I : Energy Sector under the Sixth Five Year Plans (1951 to 1985)

Sl. No.	Five Year Plan & period	Head	Total Provision (In Rs. Crores)	Total outlay for the Public Sector	Percentage of the total outlay
1.	I Plan (1951-56)	Irrigation & Power	647.00	2,377.00	28.10
2.	II Plan (1956-61)	Irrigation & Power	913.00	4,800.00	19.00
3.	III Plan (1961-66)	Power	1012.00	7,500.00	13.00
4.	IV Plan (1969-74)	Power	2455.83	15,902.34	15.40
5.	V Plan (1974-78)	Power	7293.90	39,287.49	18.60
6.	VI Plan (1980-85)	Energy	26535.44	97,500.00	27.22

Source : Five Year Plan Drafts—I to VI

The Table above shows that investment in energy sector has been steadily increasing through the five year plans. Investment in energy sector has in fact grown both as a per cent of planned investment and as proportion of actual public sector expenditure.

The 6th Five Year Plan (1980-85) envisages a total outlay of Rs. 1,72,210 crores, of which Rs. 97,500 crores will be in the public sector. With a view to ensuring speedy development a substantial outlay in the public sector plan has been earmarked for the development of the energy sector for which a sum of Rs. 26,535.44 crores has been provided. This is 27.22 per cent of the total public sector outlay, the largest share to any single sector. The proposed outlay on energy has been further divided into the different forms of energy as shown in Table II.

From Table II we can see that the Energy Sector gets the largest chunk of the public sector outlay. Within this sector, power gets the largest share with an outlay of Rs. 4,300 crores (16.20 per cent). Coal gets only Rs. 2870 crores (10.82 per cent), followed by a meagre outlay of Rs. 100 crores (0.38 per cent) for new and renewable sources of energy. The largest outlay for the power sector can be justified because among the various existing energy resources in India such as coal, oil, electricity, natural gas, ect., electricity or power is "the most convenient, verile and popular form of commercial energy."

In fact, the 6th Plan, while enumerating its ten main objectives, mentions the following as the 4th objective; "a speedy development of indigenous sources of energy, with proper emphasis on conservation and efficiency in energy use." The strategy for the energy sector is mentioned in the Plan document in the following words. "...........reduced dependence on imported oil has to be a key element of our development strategy in years to come," The Plan document has explained "the broad outline" of the strategy as follows :

(i) Through the pursuit of appropriate pricing policies and other related measures, the rate of growth of consumption of oil products must be curbed, particularly of diesel and kerosene which have shown unacceptably high rates of growth in recent years. Utmost economy and maximum efficiency in the proper use of petrol, diesel and petroleum products should be effected.

(ii) Efforts for the exploration and development of domestic resources of oil have to be intensified.

(iii) Expansion of the production of coal and electricity and faster exploitation of India's considerable hydro potential and further development of nuclear power have to be pursued with greater vigour.

(iv) In order to economise in the use of kerosene and diesel in rural areas, setting up of biogas plants and 'energy plantations' under the intensive Forestry Development Programme using wasteland and appropriate timber species which grow rapidly, have to be pushed ahead.

(v) There is a considerable scope for conservation and economy in the use of several industrial processes. An energy audit should invariably become an

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*University of Calicut, Kerala.

Table II : Energy Sector outlay in the Sixth Five Year Plan

(1980-85)

Sl. No.	Form of Energy	Central Sector	States' Sector	Union Territories' Sector	Total	% of Total
1.	Power	4725.00	15293.56	246.88	19265.44	72.60
2.	New & Renewable Sources of Energy	100.00	—	—	100.00	0.38
3.	Petroleum	4300.00	—	—	4300.00	16.20
4	Coal	2870.00	—	—	2870.00	10.82
	Total	**11995.00**	**15293.56**	**246.88**	**26535.44**	**100.00**

Source : Draft 6th Plan.

annual feature of the activities of all major industrial enterprises in the public and private sectors, and

(vi) Research on the development of renewable sources of energy, particularly use of solar energy, must receive greater attention than in the past. A minimum objective should be to develop extensive use of solar energy by the end of the decade for irrigation.

The planners have realised that, "In view of the severity of the energy constraint, massive investments will be necessary in sectors such as coal, electricity generation." Coal production target for 1984-85 will involve a substantial step-up over the production of 104 million tonnes in 1979-80, to 165 million tonnes by 1984-85.

It is wrong to believe that as a country we are exceptionally well endowed with large reserves of possible fuels. U.S.S.R. has 36 times our per capita reserves of coal, U.S.A. 10 times and China 3 times. Our present estimated oil and gas reserves are only 1/10th of the U.S.A.'s 1/26th of the USSR's and 1/7th of China's.

The Plan aims at increasing the installed generating capacity of electricity by nearly 20,000 M.W. For this purpose, it will be necessary to establish Super Thermal Power Stations in the Central Sector and also to strengthen the regional grids and move to a national grid so as to secure optimum utilisation of generating capacity in different parts of the country. This investment in transmission and distribution and efforts to reduce transmission losses will have to be given a high priority. Moreover significant outlays will also be incurred on coal and power projects, which will fructify in the Seventh Plan. The production of crude oil is expected to go up from 11.8 million tonnes in 1979-80 to around 22 million tonnes by 1984-85. The outlays in this sector have to take into account expenditure on exploration as well as expansion of refining capacity in the country.

Lack of an Energy Policy

We have ben lacking in a systematic Energy Policy. At present the responsibility gets divided up between the Ministries of Petroleum and Chemicals, Energy, Department of Atomic Energy, Ministry of Agriculture for biogas and the Department of Science and Technology for new energy sources. And, we now have the Commission for Alternative Sources of Energy with an undefined role, to add to the confusion. Our first two Five Year Plans treated power along with irrigation. The Third, Fourth and Fifth Plans separated irrigation and flood control from power investments. Coal resources development is discussed under the heading of mineral resources development ; oil and natural gas resources investments are covered under Industrial Development, or a similar classification. Investments in nuclear energy are included in scientific, technical, and industrial research or the power category. Throughout the planning period, each energy resource was considered together with the use for that energy or as a part of the industrial or development sector to which it was attached. Because of this researchers find it quite difficult to make an attempt to separate energy resource investments from the development sector to which they are attached for planning purposses and to recombine them in such a way as to obtain an overall picture of energy resource development strategies over the five-year plans.

The management of industries and companies should do their best to avoid wastage of energy. The Sixth Plan has proposed an Energy Audit in case of industrial enterprises.

The fact that energy costs do not reflect real societal costs does not compel the industry to go in for energy conservation. The proposal made by Dr. Pandit (of Tata Electrical Company) that at board level there should be a director in charge of energy planning should be accepted by at least the large companies consuming a lot of energy.

Alternate Energy Sources

The main energy resources of India can be grouped into two : 1. Commercial Energy 2. Non-Commercial energy. In the first category coal, oil and natural gas, hydroelectric power and nuclear fuels are included. The Non-commercial energy resources in

(Contd. on p. 27)

Dr. C. V. Seshadri

Smt. Amalprava Das

Smt. Rama Devi Gopabandhu Chaudhuri

Jamnalal Bajaj Awards 1981

This year the Jamnalal Bajaj Awards have gone to Smt. Amalprava Das of Sarania Ashram, Gauhati, A.M.M. Murugappa Chettiar Research Centre, Madras and Smt. Ramadevi Gopabandhu Choudhuri, Cuttack. Each award carries a purse of Rs. 1 lakh, a citation and a medal. Here is a brief sketch of the pioneering and outstanding services rendered by each of these award winners.

Smt. Amalprava Das, born in 1911 at Dibrugarh took her M.Sc. degree in Applied Chemistry. Even though a clinical laboratory had been established by her at Gauhati, she wanted to participate in the national movement more actively. So at Wardha she learnt how to organise cottage industries, like soap-making, weaving, oil-pressing, bee-keeping, etc. In 1940 she, along with her parents, established a Training Centre at Sarania Hill near Gauhati, which has come to be known as Sarania Ashram. Smt. Amalprava Das was imprisoned twice during the freedom movement. Later she underwent training in basic education at Sevgram and started the Provincial Gram Sevika Vidyalaya, which was formally inaugurated by Gandhiji in January 1946. The same year, the Assam branch of the Kasturba Gandhi Memorial Trust was also started with its headquarters at the Sarania Ashram.

Over the years, under the inspiring guidance of Smt. Amalprava, the Ashram has become one of the famous Gandhian Institutions in the country. The Ashram has 21 different centres devoted to constructive work in the North-Eastern Region. There are 15 centres in Assam, four in Meghalaya and one each in Arunachal Pradesh and Nagaland. The ashram has also established 14 Gram Seva Centres in far-off remote areas of the region. The Gram Sevika Vidyalaya at Gauhati sends out trained gram sevikas to work in these centres. By selfless and devoted work in the fields of pre-basic education, village sanitation, maternity and child welfare and all-round village reconstruction, these sevikas have endeared themselves to the villagers. These centres have become the nuclei of creative activity and purposeful social life in the villages.

Smt. Amalprava Das has also participated in earthquake relief work in 1950, Bhoodan Movement in the fifties, and the Nagaland Peace Mission in the sixties. In 1955 she declined the Award of Padma Vibhushan.

Murugappa Chettiar Research Centre, Madras

The AMM Murugappa Chettiar Research Centre, headed by Dr. C. V. Seshadri has done pioneering work in the transfer of appropriate technology to rural areas near Madras. He and a small group of workers inspired by him have undertaken the task of developing and popularising integrated energy supply systems in villages.

Various kinds of low-cost appropriate technologies like wind devices for water pumping, biogas-geodesic dome, bio-dynamic horticulture, low-cost solar driers for fish/vegetables/grains, wind agitators for algae/pisciculture, utilisation of industrial wastes, and energy self-reliance for total village household systems have been introduced by the centre.

The scientists engaged in this work live in villages and develop appropriate devices with the participation of the villagers. They have shown that given this kind of partnership between scientists and villagers even highly sophisticated scientific techniques, such as production of algae can be introduced without difficulty. Thus one of the most difficult technologies introduced is the mass culture of a unialgal species which is a high protein edible alga for fish and poultry as well as human beings.

In addition to the work in the villages, Dr. Seshadri and his associates have also been working in the laboratory on a wide range of problems in the field of photo-synthesis and bioenergetics. Several scientific papers have been published summarising the results of this work. Thus the group has brought first rate scientific capabilities to the service of rural people.

A total population of about 2500 in 9 areas of Tamil Nadu is now directly involved in MCR's rural technologies extension work. In addition, Andhra Pradesh, West Bengal, Orissa, Mizoram, Gujarat, Karnataka and Kerala have envinced interest in their projects and have approached them for help. The space Research Centre in Sriharikota is using their advice for energy forestry.

Smt. Rama Devi Gopabandhu Choudhuri

Shrimati Rama Devi Gopabandhu Choudhuri has a long record of service to women and children, especially those belonging to the scheduled castes/tribes. During the Salt Satyagraha Movement she inspired many women to become Satyagrahis and break the salt laws. She herself was imprisoned. Later many of the women Satyagrahis, along with her actively participated in the movement for Harijan uplift started by Gandhiji in 1933. In 1934, along with her husband, Ramadevi shifted to Bari village near Cuttack. From there she worked for the emancipation of village women. In 1939, Ramadevi started popularisation of the Basic Education Programme among the girls and boys of Orissa. She was imprisoned for two years during the Quit India Movement.

She was put in charge of the Orissa Branch of the Kasturba Gandhi National Memorial Trust. She trained hundreds of women to work among the Adivasis. They took up the work of sanitation, child care, children's education and prohibition among these people and organised them to protect themselves from money-lenders and other exploiters. With Acharya Vinoba Bhave she toured Orissa on foot in connection with Bhoodan and Gramdan movements. In famine, flood and cyclone affected areas, Rama Devi organised relief work. Orphaned and abandoned children were adopted by her and she started a home for them where they were looked after and educated till they attained majority and were rehabilitated. The home has now become a permanent institution and takes care of 50 children at a time—most of them Adivasis and Harijans. At her initiative the State Red Cross Society started a Home at Barang for children of leprosy patients.

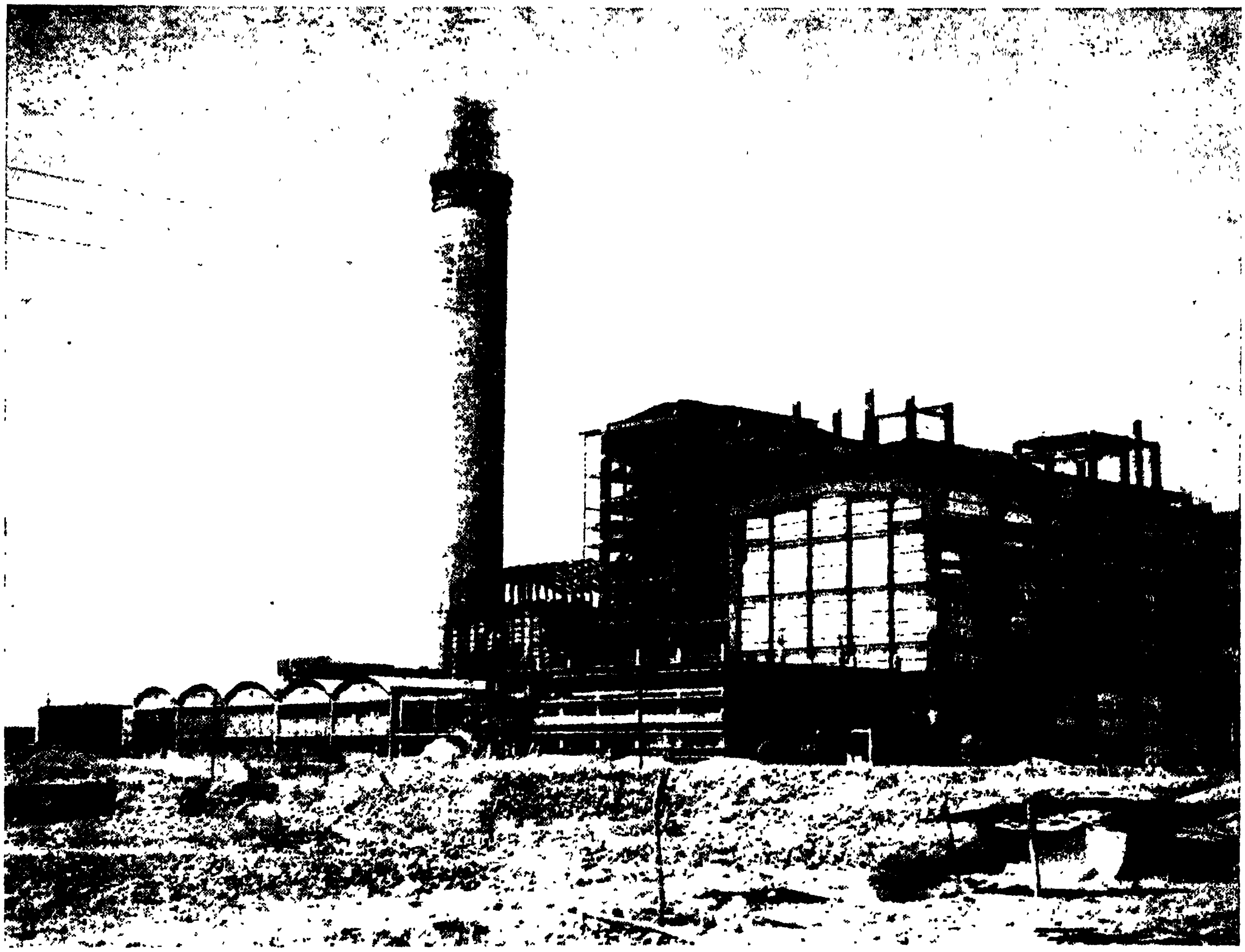
Lead Bank Scheme in Barabanki District

IN Barabanki District of UP 72 branches of various banks are functioning. Bank of India, being the lead bank, chalked out the Annual Action Plan (AAP) and the annual targets for 1980 were allotted to the participating banks for implementation. A quick study was carried out in the district with a view to assessing the progress achieved in implementing the AAP. The review of implementation of the AAP covers the first three quarters of 1980.

The disbursement of loans to various development schemes aggregated to Rs. 293.31 lakhs against the annual plan target of Rs. 472.40 lakhs, achieving 62 per cent of the target. In the agricultural sector, disbursement touched Rs. 228.31 lakhs whereas the target was Rs. 364.20 lakhs. For community betterment schemes Rs. 51.42 lakhs were disbursed that is 86.2 per cent of the financial outlay of Rs. 59.61 lakhs. Small scale industrial sector lagged significantly behind the target with disbursement amounting to Rs. 13.58 lakhs against the target of Rs. 48.59 lakhs.

Poor performance in financing small scale industries could be due to limited scope for setting up small scale indusries, dearth of entrepreneurs, proximity of the district of Lucknow which provides better opportunities for entrepreneurs, inadequate infrastructural facilities and lack of coordination between the DIC and other development agencies in the district.

As against the financial achievement of 62 per cent of the plan target, the participating banks could achieve only 29 per cent of the physical target. The participating banks had achieved 29 per cent of the physical target against 62.6 per cent of the financial target in the agricultural sector, 14 per cent of the physical target against 28 per cent of the financial target in the small scale industrial sector and 38 per cent of the physical target against 86 per cent of the financial target in the community betterment sector.



Kota Thermal Power Project taking shape on the banks of river Chambal in Rajasthan

Kota Thermal Power Project

Ram Kumar

IN Rajasthan a new source of power energy is being tapped to help the State out of grave power crisis. The Kota Thermal Power Project is coming up on the banks of river Chambal. When completed this would be the first major thermal power project of Rajasthan with a total generating capacity of 640 MW. The project would have two units of 110 MW each in its first phase and two units of 210 MW each in the second phase. With the present pace of progress, it would be possible to commission the first unit of 110 MW by March 1982 and the second unit of 110 MW by September 1982. In the context of the power shortage in the State, the project should have been completed as per schedule by March 1981 but it has been delayed because of non-availability of cement, steel, funds and other administrative reasons.

Spread over an area of 988 bighas in the north of Kota Barrage, this Rs. 81.60 crore project was given clearance in 1976 by the Planning Commission. By the end of 1977 only Rs. 3 crores were received by the Rajasthan State Electricity Board. Now, with the escalation in prices, the estimated cost of the project has risen to Rs. 132 crores. The investment so far made has crossed the initial estimates of Rs. 81.60 crores. Most of the plants and machinery have been received at the project site. The work of laying 17 Kms. railway line from Gudla Railway Station to the Project site, is in progress. Construction of roads and 418 quarters for residential purpose, school, dispensary and shopping centre is in progress. One hundred eighty four quarters have been constructed and allotted to the employees of the project.

When completed the project would consume 2400 tonnes of coal a day and increase the temperature of the area upto 100 degrees. However, all measures to reduce pollution and to use pollutants as some by-product like using the ash as a supplement powder to cement, are being kept in view. After completion of the first phase the power generation in Rajasthan would rise by 6.30 per cent in the first year, 11.48 per cent in second year and 21.30 per cent in the third year. The commissioning of this project will usher in an era of expansion of industries in Rajasthan and give some relief to the farmers.

Rajasthan has now three hydel projects at Gandhi Sagar, Rana Pratap Sagar and Jawahar Sagar depending upon unpredictable monsoons and an atomic power station at Rawatbhata in Chittorgarh district. But the performance of these units has been below expectation and responsible for the present power crisis. □

White Revolution in Madhya Pradesh

B. B. Singh Adarsh*

DAIRYING is an activity subsidiary to agriculture and is a source of regular income for rural families. It has, therefore, been given an important place in development plans.

By he end of the Fourth Plan Madhya Pradesh had 32 rural milk supply schemes managed by the State Dairy Development Federation. Around 60,000 litres per day of milk handling capacity was created at Bhopal, Indore, Gwalior and Jabalpur. Milk was procured from village cooperative societies and also from private vendors. Smaller units of 2000 litres per day were established at most of the district headquarters.

The Madhya Pradesh Dairy Development Corporation was formed in 1975 to implement an integrated dairy programme on the basis of the famous Amul Dairy at Anand. In the beginning the programme covered nine central and western districts. On account of the encouraging results it has been extended as a part of Operation Flood II to 30 districts. The overall financial outlay of both the projects is Rs. 70 crore.

Three-tier System

The entire programme is based on three-tier cooperative union owning a modern dairy plant and a federation at the State level. The most important unit is the dairy cooperative society at the village level. Under these societies teams of experts visit the potential areas and educate the farmers, after ascertaining the technical feasibility of society formation. The executive functionaries are appointed by the society only from the village.

The most interesting feature of a Dairy Cooperative Society is that, while it provides round-the-year market for milk, it also ensures that various inputs necessary for milk production are available to producers at the village. Balanced cattle feed manufactured at their own modern cooperative cattle feed factory is sold to farmers. The Federation also have a fodder extension wing which propogates the cultivation of irrigated and non-irrigated forages.

Veterinary Health Cover

A first aid box is supplied to the Secretary of the D.C.S. and the milk tester is given a short training by the union so that he is able to treat minor ailments. A mobile unit comprising a qualified veterinary doctor, visits each DCS once a week on a fixed date and time. The veterinary service also includes preventive innoculation against various diseases of cattle.

Five hundred and twenty four dairy cooperatives have so far been established and milk collected during the flush season was over 90,000 litres per day. All societies are making profits and many of them have distributed bonus to members.

At the end of 1986 the number of producers' dairy cooperatives is likely to rise to 4780 with 11 lakh heads of cattle and daily production of 5.70 lakh litres of milk. □

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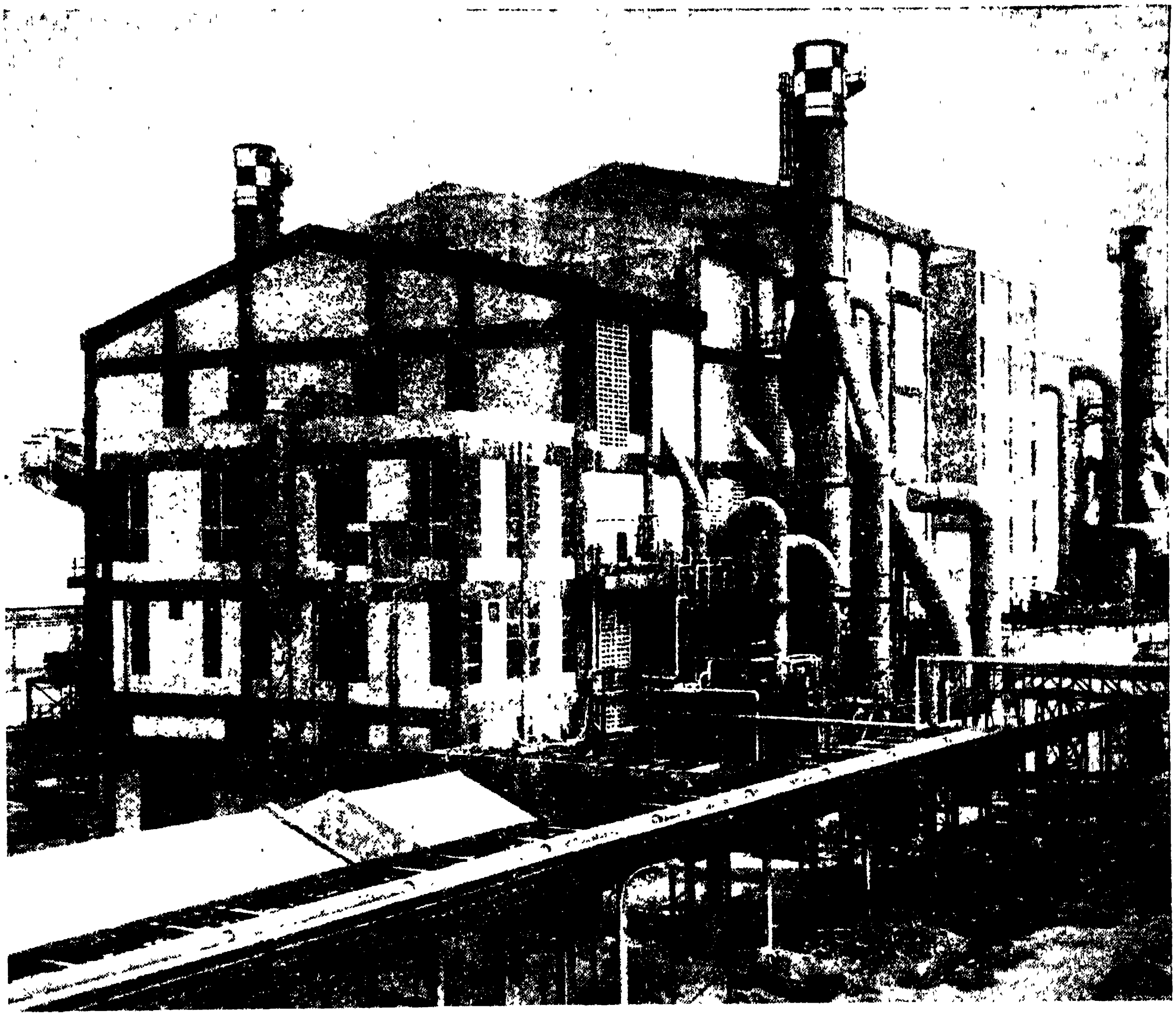
*Freelance Writer

Nepa Mills

THE National Newsprint & Paper Mills Limited, popularly known as the Nepamills was established on 25th January, 1947. The Mill uses chemicals and mechanical pulps of bamboo and salai, (a locally available hard wood). The unique feature of the mill is that all the mechanical pulp required, is produced from the hard wood alone. In most of the foreign countries, the mechanical pulp is also made from soft wood. Recently, a third type of pulp called semi-chemical pulp by Cold Caustic Soda Pulping Process from salai has also been incorporated.

The mill has its own caustic soda chlorine plant for meeting the needs of chlorine and caustic soda for the manufacturing process. Recently the capacity of the plant has been expanded. A plant to treat polluted water has also been erected and commissioned.

The newsprint manufactured by the Nepamills meets a part of the demand of newspapers in India. It caters to the needs of the country to the extent of about 15 to 20 per cent. Foreign exchange is saved to that extent. The remaining needs of newsprint are being met from imports. The Nepa newsprint is sold to the newspaper establishments on authorisation by the Registrar of Newspapers in India. A small fraction of the produce which cannot be used in high speed rotary machines by the newspaper establishments are marketted through selling agents appointed by the Company.



India's largest NPK Plant at Kandla in Gujarat, owned by the Indian Cooperatives

Fertiliser Through Cooperatives—An Overview

Prem K. Chugh*

WITH the advent of high-yielding varieties of food-grains, chemical fertilisers have played a significant role in increasing farm output mani-fold. It has been proved that 35 to 50 per cent increase can be obtained by their systematic application. It has been rightly said that if high yielding seed is the vehicle for green revolution, fertiliser is the fuel which has moved it forward. Chemical fertiliser is today the kingpin of Indian agriculture.

No wonder therefore that fertiliser consumption in India has been galloping at the rate of roughly 16 to 18 per cent compound barring certain abberations. Nevertheless, the increase from 65.6 thousand tonnes of nutrients in 1951-52 to 5,699 thousand tonnes in 1980-81, registering 87 times spurt, is something revolutionary.

Until 1966, Cooperatives were enjoying almost a monopoly so far as fertiliser trade was concerned. To broaden the consumption base and consequent need of attracting private investments in fertiliser industry, Government of India liberalised their policy by giving freedom to the private sector to market their products and to fix their own prices, except for certain straight nitrogenous fertilisers. Seeing the heavy demand for fertilisers and consequent bright future ahead, private sector entered the fray with a bang, heralding an era of competition. It was feared that cooperatives with all their limitations and maladies may not be able to withstand the stiff competition posed by a well organised and well managed private sector. Moreover, private trade had an advantage over cooperatives by confining their operation upto block|rail road-head level where the distribution costs were comparatively low and distribution margins larger.

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*Editor, IFFCO News

But Cooperative Sector still continues to maintain its stature of the largest fertiliser distributor by sharing about 50 per cent of the total fertiliser trade in the country.

Cooperatives as Producers

When cooperatives had a bulk share in fertiliser marketing, they ought to have a production unit as a natural corollary. It was in 1968 that Indian cooperatives from village to national level, pooled their scant resources to enter into the capital intensive sophisticated fertiliser production industry. Matching aids came from Government, Commercial Banks and the USAID. Again the scepticisms aired by many in the industry if the weak and ill-managed cooperatives would be able to muster financial and management support for such a heavy venture, were silenced when their federation, Indian Farmers Fertiliser Cooperative Ltd. (IFFCO) successfully executed two giant fertiliser plants by the end of 1974-75, one at Kandla and anothter at Kalol both in Gujarat, with an investment of Rs. 9 crores.

The organisation has shown wonderful results. Within four years of production career, IFFCO emerged as the largest producer of fertilisers in the country in 1978-79 and continues to maintain that distinction consecutively for the third year upto 1980-81 contributing 11 per cent to total nitrogenous fertiliser production and 23 per cent of total phosphatic fertiliser production in the country. It has been yielding impressive profits year after year with a cumulative profit of Rs. 134 crores against an investment of Rs. 97.60 crores. With the completion of its new capacities at Phulpur and Kandla during 1980-81 it is poised to play a still larger role in fertiliser industry. IFFCO's Kandla plant with its enhanced capacity to produce one million tonnes of NPK fertilisers, has emerged as one of the largest plants of this kind in the world. On promotion side the organisation has adopted a concept of serving as a catalytic agent in the rural areas to improve the overall rural life with main thrust on dissemination of modern agricultural technology through its agriculturally qualified and motivated field staff based in the interiors of the country. It has already bagged coveted ICMA Award in 1978 for "Social Progress" in chemical industry for its outstanding work in nurturing the rural section through transfer of technology.

Fertilisers are supplied at the door steps of the farmers through the village cooperative network

Encouraged by overwhelming success of the IFFCO, cooperatives are presently engaged in executing another massive fertiliser complex at the cost of Rs. 960 crores at Hazira, near Surat, through their newly constituted society Krishak Bharat Cooperative Ltd. With this project going on stream in 1985-86, cooperative sector would be producing a sizeable quantity of 25 lakh tonnes of urea and 10 lakh tonnes of NPK fertilisers, accounting for 16 per cent of total nitrogenous fertilisers and 15 per cent of total phosphatic fertilisers to be produced indigenously. □

Energy from Solar-heated Liquid Metals

PROF. BRANOVER of Ben Gurion University in Beersheba, the capital of the Negev Desert, showed how a liquid metal such as a sodium potassium alloy is heated rapidly by being circulated through a solar collector. It is then mixed with droplets of a volatile liquid. The droplets heat up, vapourize and expand, driving the liquid metal at a high velocity through a metal pipe surrounded by a high-intensity magnet. This interaction generates an electric field and the current produced is picked up by electrodes on either side of the pipe.

The mixture then flows into a separator for "recycling", the liquid metal returning to the solar collector and the vapour condensed in a tank to produce hot water which can be used in the home or factory. The system, says Branover, promises to provide electric power at half the cost of conventional electricity, with the added advantage of not requiring complex or heavy machinery such as turbines or generators.

(News from Israel)

Arthritis affected paw of a rat before (left) and after (right) treatment with herbal drug

A Dream Comes True

Suraj araf*

IN January, 1940, an investiture ceremony was held at Delhi to confer knighthood on several dignitaries. Dr. Col. Sir Ram Nath Chopra, the then Principal, School of Tropical Medicine, Calcutta, and Sir. N. Gopalaswamy Iyenger, the then Prime Minister, Jammu and Kashmir were among them. Sir Gopalaswamy requested Sir Chopra to start a Drug Research Laboratory in Jammu and Kashmir. Chopra accepted the offer.

The plan was executed at top speed and the proposed heads of the four sections planned to be set up in the DRL at Jammu, were trained under the personal supervision of Sir Chopra at the School of Tropical Medicine, Calcutta. These four sections were Pharmacology, Botany, Chemistry and Manufacturing (drug). Building having been completed, equipment purchased the DRL started working formally in November, 1941. Sir Chopra was its founder-director. Sir Chopra involved Indian Council of Medical Research, Council of Scientific and Industrial Research and Indian Council of Agricultural Research in financing various research schemes of the laboratory sanctioned from time to time.

Sir Chopra was the fittest person to be entrusted with this job. Having obtained several degrees in medicine from Cambridge University he had worked in pharmacology under the internationally renowned exponent of medicine, Professor Dixon, obtained third position in I.M.S. competition and having seen active service in East Africa and Afghanistan for 12 years he occupied the first chair of pharmacology in the School of Tropical Medicine, Calcutta, when it was started in 1921. The main theme which attracted Sir Chopra's attention was the study of indigenous drugs.

His work on indigenous drugs had set up a high standard of medical and chemical research in India and focussed international attention on it. Its economic value was also significant. His compendiums on Indian drugs are monuments to his enthusiasm and endeavour in the field which had seldom been trodden for several centuries in India. He was one of those who tried to bridge the gap between pharmacology, therapeutics and clinical medicine.

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*Journalist, Jammu,

Vidari Khand, a herb, is found to be cheap and effective anti-fertility medicine

Drug Research Laboratory

Initially activities of DRL at Jammu were related to survey, chemical investigation and pharmacological screening of medicinal and aromatic plants. Later investigations on cultivation of important medicinal and aromatic plants and microbiological screening of plant extracts were also taken up. Cultivation of exotic medicinal plants and finding substitutes for such drugs as could not be produced in India were also included in the scope of work of the DRL, Jammu. Manufacturing section was further developed and made independent as a commercial unit which later established its own farms to grow important medicinal plants on commercial scale.

In 1957 DRL, Jammu, was taken over by CSIR and converted into a Regional Research Laboratory with several sections added because now its scope was widened to research programmes regarding utilisation of all natural resources of plant, mineral or animal origin. Nevertheless, the laboratory continued the pharmacological and related sections and carried on the work on drugs there. Meanwhile the manufacturing sections had continued under the old name of Drug Research Laboratory. By and by it became a full-fledged unit of the CIMPO (Central Indian Medical Plants Organisation) functionig independently of the Regional Research Laboratory. Meanwhile the RRL had also established a full-fledged branch at Srinagar (Kashmir) and a unit in the Himachal Pradesh to expand its activities which include exploration of flora there.

A crucial change was brought about in the laboratory in mid 1970's in order to accelerate and improve its working. The basis of the new approach was that instead of extensive screening of large number of plants taken at random, indepth studies were started on selected plants. This selection was made on the basis of information regarding the usage of certain herbals for relief and cure of specific ailments and the ethno-botanical information received through the generosity of persons who were in possession of such information.

Whereas previously after screening about 400 plants there was no hope of a single new drug, the new approach proved "most rewarding". Presently there are about a dozen phytochemicals or their analogues, homologues and semi-synthetic derivatives, on which pharmacological investigations are being completed and have the promise of coming up as new drugs. Clinical trials on some of these have already been taken up.

Vasicine, a medicine prepared from vasaka plant can replace many costly imported drugs

A highly qualified and experienced team of scientists is engaged in these investigations. A number of drug houses, both national and international, have approached this laboratory for release of know-how on the new drugs.

The promising results obtained in a short period prove that there is much unexplored utility in the indigenous herbs. The pioneering work started by Dr. Chopra and continued and expanded over the years by this laboratory, has laid a sound basis for the Indian indigenous drug industry which has been taken note of even internationally. A very welcome feature of this work has been that some very useful medicinal plants which were previously going to waste or being exported raw and reimported as finished products began to be exploited locally saving good amount of foreign exchange. ☐

Calorie Deficiency Among States— A Comparative Study

K. C. Majumdar and K. L. Datta*

PEOPLE of various States in our country have varied food habits. Here is an attempt to estimate the deficiency in calorie intake in different States and to identify a few causal factors. The entire analysis is carried out for the year 1972-73 for which adequate and reliable information is available.

In this study, specific calorie norms for different States based on the age, sex and activity distribution of the population and also for rural and urban areas, have been used. Age-sex-activity specific calorie allowance as recommended by the Nutrition Expert Group (1968) are averaged using an estimated age-sex-occupational structure of population as weighting diagram. Nutrition Expert Group (NEG), while allowing for differentials in calorie needs, carved out relatively homogenous person categories comprising five for children on the basis of age, three for adolescents in terms of age-sex and six for nineteen years or more—three each for male and female engaged in heavy moderate and sedentary work. Inclusion of non-working male and female to this takes care of the entire population. Population less than 15 years old has been appropriately re-grouped to conform to the age groupings for different calorie allowances recommended by the NEG. Calorie requirements of workers and non-workers aged fifteen but less than nineteen years is assumed the same as for workers and non-workers respectively. An extra 300 calorie per capita per day for a period of six months of pregnancy is attributed to pregnant women. Data used to derive the weighting diagram with the above assumptions for these mutually exclusive and exhaustive groups are taken from the (a) Projection III of the Expert Committee on Population (1977), (b) 1971 Census, and (e) NSS Employment data of 27th Round (1979-83).

State Specific Calories Norm

Using the weighting diagram the specific calorie norm is estimated for each state. To work out the monetary counterpart of state specific calorie requirements, or equivalently calorie norm expenditure lines (CNEL), 27th round (1972-73) NSS data relating to private consumption both in quantitative and value terms have been used. Using the appropriate conversion factor (as provided in NSS 26th round) calorie content of food items of each monthly per capita expenditure class has been calculated. Then on application of inverse linear interpolation method to the data on average per capita monthly expenditure and the associated calorie content of food items in the class, CNEL is estimated.

The calorie deficiency in each expenditure class has been determined as the difference between state specific calorie norm and the actual calorie intake of the expenditure class. The aggregate calorie deficiency has been estimated by multiplying the daily per capita calorie deficiency with the population of the deficient classes. The population in these classes has been generated by using the population proportions as derived from the 27th round NSS data and the estimated population for the states for the year 1972-73. The per capita calorie deficiency, the total calorie deficiency of the deficient group as per cent of all India deficiency together with state specific calorie norms, CNEL and percentage of people below CNEL are estimated for different states and are presented for rural and urban areas respectively.

Analysis of Results

The state specific calorie norms do not differ much from the all-India norm. In rural areas, these are within 10 per cent of all India level while in urban they are hardly within 3 per cent of all India norm. Meghalaya in rural and Bihar in urban come out with highest calorie norm while the lowest calorie norm is evident in Haryana and Tripura in rural and urban areas respectively. A glance at the state specific calorie norms reflect less variability in urban areas compared to rural. In fact less than one per cent fluctuation from all India norm is found in rural areas of Bihar, Jammu & Kashmir, Karnataka, Orissa, Tripura and West Bengal and in urban areas of Andhra Pradesh, Assam, Gujarat, Karnataka, Kerala, Maharashtra, Manipur, Orissa, Punjab, Tamil Nadu and West Bengal. Identical movement of over-estimation or under-estimation of calorie norm in rural and urban areas compared to the respective all India norm is found in all the States excepting Bihar Gujarat, Madhya Pradesh, Meghalaya, Orissa, Rajasthan and West Bengal.

The average per capita monthly expenditure required to attain the state specific calorie norm differ substantially among the states. Jammu & Kashmir receives least expenditure to meet the desired calorie norm in both rural and urban areas. Maximum expenditure is evident in Meghalaya and Kerala in rural and urban areas respectively. At all India level, it is found that a monthly per capita consumer expenditure of Rs. 43.06 and Rs. 57.04 (at 1972-73 prices) is sufficient to meet the desired calorie requirement of 2337 and 2093 per capita per day, respectively in rural and urban areas. The expenditure and calorie distribution in some states are such that more monetary expenditure is needed to meet even less calorie requirement compared to all India and also vice-versa. Both rural and urban areas of Kerala, Maharashtra and

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*Planning Commission.

Table 1

Statewise distribution of calorie deficiency—Rural and Urban 1972-75

State	Calorie deficiency per day			
	% of all India Total	Per capita calorie	% of all India Total	Per capita calorie
	Rural	Rural	Urban	Urban
Andhra Pradesh	10.936	568	6.065	281
Assam	2.469	319	0.697	388
Bihar	11.802	547	4.090	422
Gujarat	5.071	583	6.875	379
Haryana	0.243	415	0.822	384
Himachal Pradesh	0.190	420	0.067	298
Jammu & Kashmir	0.114	190	0.160	162
Karnataka	5.186	620	9.076	499
Kerala	8.611	808	7.806	702
Madhya Pradesh	5.979	496	3.412	278
Maharashtra	12.121	578	19.384	378
Manipur	0.089	248	0.046	308
Meghalaya	0.259	461	0.069	233
Orissa	6.584	652	1.328	411
Punjab	0.515	318	1.621	312
Rajasthan	2.292	491	1 829	255
Tamil Nadu	9 505	595	18.764	550
Tripura	0.287	412	0.074	258
Uttar Pradesh	6.717	340	6.996	448
West Bengal	11.022	705	10.819	346
All India	**100.000**	**538**	**100.000**	**403**

Table—2

Ranking of States in terms of different Indicatiors of Poverty

States	Percentage of people below CNEL		Average daily per capita calorie Deficiency		Total Calorie Deficiency as % to all India Deficiency	
	Rural	Urban	Rural	Urban	Rural	Urban
Andhra Pradesh	5	5	8	15	4	8
Assam	7	15	17	7	12	15
Bihar	11	7	9	5	2	9
Gujarat	9	6	6	9	11	77
Haryana	20	13	14	8	15	14
Himachal Pradesh	18	20	13	14	18	19
Jammu & Kashmir	19	18	20	20	19	16
Karnataka	12	3	4	3	10	4
Kerala	2	1	1	1	6	5
Madhya Pradesh	13	9	10	16	9	10
Maharashtra	3	2	7	10	1	1
Manipur	14	19	19	13	20	20
Meghalaya	1	14	12	19	17	18
Orissa	8	8	3	6	8	13
Punjab	17	10	18	12	14	12
Rajasthan	15	12	11	18	13	11
Tamil Nadu	4	17	5	2	5	2
Tripura	10	16	15	17	16	17
Uttar Pradesh	16	11	16	4	7	6
West Bengal	6	4	2	11	3	3

West Bengal, rural areas of Manipur and urban areas of Meghalaya come out with a comparatively high expenditure to meet their respective calorie needs which are more or less similar to all India caloric requirements. On the other hand, both rural and urban areas of Jammu & Kashmir, Madhya Pradesh, Rajasthan and Uttar Pradesh reflect equally an opposite situation where amounts of money needed to meet the desired caloric requrements are comparatively less. This may be due to the fact that the consumption pattern prevailing in the States are prone to low cost diet.

Percentage of people below CNEL varies from 18.20 per cent in Haryana to 91.95 per cent in Meghalaya as against 62.74 per cent for all India for rural areas, while the same for urban areas varies from 26.07 per cent in Himachal Pradesh to 76.24 per cent in Kerala as against about 60 per cent for all India. The lorenz ratio varies within a range of 0.153 in Meghalaya to 0.316 in Rajasthan as against all India lorenz ratio of 0.302 in rural areas. The same varies from 0.206 in Manipur to 0.390 in Kerala as against all India lorenz of 0.341 in urban areas. It is very interesting to note that in rural areas although the lorenz ratio or the disparity in consumption distribution is the lowest in Meghalaya, the percentage of population in the state is the highest. This is because of the low magnitudes of per capita consumption of food as well as all items in Meghalaya in the rural areas mostly centered around CNEL. In fact, the average calorie deficiency is explained to a greater extent by both lorenz ratio as well as the food consumption.

It is observed that the inter-state variability expressed in terms of coefficient of variation for state specific calorie norm is 3 per cent in rural and only one per cent in urban. As against this we find almost same inter-state variability (21-22 per cent) for rural and urban areas in respect of CNEL. But so far as percentage of people below CNEL is concerned inter-state variability is significantly higher in rural (37 per cent) compared to urban areas (30 per cent). The inter-state variability of lorenz ratio of total consumption and of concentration ratios of food consumption is more in rural (17-19 per cent) than in urban areas 14-15 per cent).

Following three criteria may be considered to examine the comparative poverty situation in different states :

(a) Total calorie deficiency of deficient group of people as percentage of all India calorie deficiency;

(b) Average daily per capita calorie deficiency of the deficient group of people: and

(c) Percentage of people below CNEL.

The rank correlation between the first two criteria is quite high as one can expect, namely 0.70 in rural and 0.5 in urban. This suggests that analysis or poverty based on criteria (a) and (b) will be more or less similar, but will differ from that based on criterion (c). We have considered criteria (b) in the present criteria study for statal comparisons of poverty.

It is found that the calorie deficiency in Maharashtra is the highest, namely, 12.12 per cent of all India deficiency in rural and 19.38 per cent in urban while according to percentage of people below CNEL Maharashtra ranks third in rural areas and second in urban areas among all the states. This is quite interesting and one would perhaps think of total calorie deficiency as a criterion for central assistance to states or per capita calorie deficiency in case total population of states is considered as an independent factor.

Average per capita daily calorie deficiency of the deficient group is found to be quite hihgly correlated with concentration ratio of food consumption rather than lorenz ratio of total consumption. The elasticity of per capita calorie deficiency with respect of concentration of ratio of food is 1.10 in rural and 1.07 in urban areas, indicating that the per capita calorie deficiency is likely to increase by about 10 per cent or every percentage rise in the inequality in food consumption.

In our attempt to explain mortaility rate and life expectancy by either disparity of consumption distribution or caloric deficiency it is noticed that there is absolutely no correlation amongst these factors. This indicates that death rates do not depend much on calorie deficiency but perhaps are caused much due to hygenic conditions, lack of medical facilities and other adverse environmental and social conditions.

The study suggests that the percentage of people below calorie norm expenditure line (CNEL) is not a proper criteria for determining poverty situation. Calorie intake derived from free and subsidised food should be excluded before estimating monetary equivalent of poverty line based on calorie norm. Total calorie deficiency in States should be one of the main criteria in providing assistance to states. Per capita caloric deficiency depends significantly on food consumption and disparity in consumption distribution. Socio-demographic variables like, expectation of life, mortality and literacy rates have not been found to bear any significant relationship with economic factors considered in this study. ☐

Preservation of Balance of Nature in W. Ghats

THE Western Ghats Water Resources Study Committee set up by the Planning Commission has recommended preservation of the biological wealth of the Mahabaleshwar and Matheran plateaus and the catchment areas of the Koyna river in Konkan region by establishing bio-sphere reserves in these places.

Mahabaleshwar is a popular hill resort about 120 km from Pune and Matheran is a minor but equally popular hill station near the Neraj junction station on the Bombay-Pune railway line. Koyna river in southern Maharashtra has been harnessed in recent years for production of hydro-electricity.

The committee in its report and the original forces covers in these areas containing precious biological wealth is now under considerable stress. It has recommended immediate field surveys to assess the actual status of these areas and formulate scheme for the bio-sphere reserves.

The study committee, under chairmanship of Dr. M. S. Swaminathan, Member, Planning Commission, went into all aspects of the development of water resources of the Konkan region. It has recommended a number of steps for development of medium and minor irrigation, agriculture, horticulture pisciculture, silvi-pastoral and other related matters. In order to create employment opportunities for the people of the region.

The committee has also suggested that the Malwan coast in Ratnagiri district should be taken up, for development as a marine port. ☐

Role of Ancillarisation In Industrial Development

G. Satyanarayana* and Ch. Ram Prasad

THE Government has time and again been laying emphasis on the need for the development of small scale, village and cottage industries, through various five-year plan programmes. The development of village and small scale industries has been deemed necessary for the realisation of such social goals as the production of consumer goods, optimum husbanding of the material and non-material resources, prevention of concentration of economic power and development of employment oriented industry.

For the exclusive promotion and development of small scale industries, the government launched the programme of establishing various types of industrial estates—urban, semi-urban, rural, large, medium, small and ancillary—in 1955. At the same time, the focal point of development was brought from big cities to district headquarters with the introduction of the District Industries Centres Programme, in 1977. In the new Industrial Policy Resolution of 1980, the financial limits of small scale unit, tiny unit and ancillary unit stand increased at higher level as a special incentive, so that the severity of inflation can be offset. It, however, allows the already existing several incentives for the promotion of small scale industries to continue.

The financial limits of small scale unit have been enhanced from Rs. 10 lakh to Rs. 20 lakh, of Tiny unit from Rs. 1 lakh to Rs. 2 lakh and of Ancillary unit from Rs. 15 lakh to Rs. 25 lakh.

According to the new industrial policy resolution anounced in 1980, the Government seem to give importance to ancillarisation through the establishment of nucleus plants. As the stress laid on small scale industry is of paramount importance, the policy itself can be aptly called—'Small Scale Industrial Policy'. Before we get at the issue, the terms ancillary unit ancillarisation and ancillary industrial estate need be explained.

Ancillary units are the producers of intermediate products. They are feeders of raw materials and component parts for the parent or the large units on a contractual basis. Ancillary and parent units are just like holding and subsidiary companies. Here parent or the big industrial house makes use of the finished goods of ancillary units, as the basic raw materials.

By the word ancillarisation, it is meant that it is industrialisation and industrial development, through small scale units, especially of ancillary nature. Ancillary industrial estate is one in which the ancillary units are housed.

Industrial Estates

Though the programme of industrial estate was launched as far back as 1955 and ancilarisation was one of the several objectives behind the screen, it has never been an effective instrument for the promotion of the ancillary industrial units. It has, however been relatively more successful with respect to urban industrial estates than with rural, functional or ancillary industrial estates.

Though the question of the establishment of ancillary industrial estates was repeatedly contemplated in the I, II, III and IV five-year plans it had no impact at all. This can be discerned from the fact that the number of ancillary industrial estates has been less than 10 while the number of other estates (urban, semi-urban and rural) has been more than 500. The growth of ancillary industrial estates is still in an embryonic statge. Thus, the objective of developing the ancillary industrial units and industrial estates has not materialised, in spite of the fact that the Government has taken several measure like repeated enhancement of financial limit to enable such units to withstand, among others, harshness of the inflation and supply of scarce raw materials and machinery. Besides, the parent or the big industrial houses themeselves have been lending their helping hand in the forms of, attending to the requirements of technical, managerial, administrative, marketing etc. of small scale industrial units and ancillaries.

The only encouraging development in industrial estate programme was the establishment by HMT of a 50-unit ancillary estate at Banglore at a cost of Rs. 20 lakh with a provision of 50 small scale ancillary factory sheds. The average investment of each of the above 50 units was of the order of Rs. 1 lakh which was to be contributed both by the entrepreneur and the HMT and State Bank of India collectively. Another estate, with sheds accompanied by other facilities for 50 ancillary units was also set up by HMT near its Punjab unit.

Heavy Electricals Ltd., Bhopal was another public undertaking to follow by establishing an ancillary estate with a provision of six sheds for the small scale ancillary units. Heavy Engineering Corporation, Ranchi, Bharat Electronics Ltd., Bangalore, Hindustan Steel Plant, Bhilai, Rourkela Steel Plant, Rourkela, Bokaro Steel Plant, Durgapur Industrial Belt etc., were stated to have developed ancillary industrial estates and ancillaries in and near their own premises.

The steel plants have been lending their helping hand to small scale ancillary units by offering expert technology, managerial assistance and preference in the placement of orders. The present number of the units ancillary to the steel plants is 652 as against 500 during 1978-79.

It can now be seen from the above that the pace of establishment of ancillary industrial estates has not been encouraging. The big private sector has not been coming forward for the promotion of small scale ancillary units. There are a number of reasons for the poor growth of ancillary industrial units and ancillary industrial estates.

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The most usual complaint lodged against the ancillary units, by their parent units is that they have not been able to keep up the standard of the quality of the output, and timely supply of the finished goods, components, spares etc.

There has been absence of long-term contracts and agreements between parent and ancillary units, followed by acute shortage of scarce material resources for the ancillary units. Slump in demand for their products had invariably adverse effect on the level of activity of the ancillary units.

Many times paucity of funds caused by the undue delay by the parent units in making payments for the supplies made by the ancillary units hampered their production.

The Industrial Estates Programme also suffered from inherent defects. There has been lack of proper planning with regard to the location of industrial estates. The estates must be located near a large or parent industrial house. The policy of not admitting the large scale units into the industrial estates needs to be thoroughly reviewed so that the ancillary linkages can be easily established with the new entrant. Ancillarisation or industrialisation can't occur in vacuum. Mere establishment of industrial estates can't ancillarise or industrialise the particular area. Existence of industrial base is the pre-condition.

Conclusion

First of all, a good and sound parent-ancillary relationship must be fostered. Only public sector units have been promoting the ancillary small scale units for all these years while the contribution of the private sector to the same has been absolutely nil. The promotion and development of ancillary units by the big private sector should be deemed to be a mater of prestige for the private sector. They must be prepared to part with a part of the manufacturing, activity and pass it on to the ancillary units. They should feel that they are sacrificing for the noble cause of promotion and development of small industry through the ancillary units.

The government can also enact necessary legislation on the subject. If it is of the opinion that the voluntary system doesn't work out well and doesn't fit in the Indian scene, it can define in unambiguous terms the respective parts of the manufacturing activity to be taken up by parent and ancillary unit. If the Government doesn't do this through legislation, it can as well counsel and convince the big industrialists about the need for the development of the same and thus it may indirectly ask them to help in the task. The Government should encourage large scale units to promote ancillaries, and the only way to help materialise this is to make them buy and use the components from ancillary units.

On the other hand, the sponsoring authorities of the industrial estates shall have to see that proper consideration is given to various research recommendations on the functioning of the industrial estates programme. The various locational advantages and disadvantages and recommendations of the government with regard to the physical planning of the industrial estates must be properly heeded. The development and promotion of ancillaries is possible when the Government encourages the large industrial houses to use the goods of the ancillaries, when the large scale units cooperate with the small scale units, when the large industrial houses establish industrial estates to accommodate the ancillaries, and when they decide to buy but not to make by themselves. Thus, there must be a co-ordinate endeavour of several agencies.

IBRD-Assisted Agricultural Programme: An Assessment

Karnataka and Haryana have performed quite well under the Word Bank-assisted Training and Visit (T&V) System. But the progress in Bihar has been tardy. This is revealed in the latest assessment made by the Ministry of Agriculture of 12 States which have adopted this system.

Under the Training and Visit system, a reorganized and streamlined agricultural extension method, the World Bank has provided assistance worth Rs. 194 crores in 12 States out of the total investment of Rs. 284 crores. The latest assessment by the Ministry of Agriculture says that the system has now started working very well in West Bengal. Gujarat, Rajasthan and Orissa are among the States whose performance is said to be fairly good. The system is doing quite well in Assam but it has suffered a setback because of the recent agitation over the foreigners' issue in the State.

The Centre's assessment of Bihar has revealed that the programme has covered just five out of 31 districts even though it was launched three years ago. Administrative constraints are said to be the factors responsible for the tardy implementation of the programme.

The programme made a very promising start in West Bengal in 1977. But it could not make headway as the State Government was indecisive about the effective transfer of village level workers to the Directorate of Agriculture. The programme was discontinued for about two years and was resumed in May, 1980. In Orissa where the programme covers all the 13 districts, adaptive research farms have been established. A technical sub-committee has been set up for formulating adaptive research programmes. The system seeks to cover 17 districts out of a total of 26 in Rajasthan. Though vacancies in the administrative network are a constraint in the execution of the programme the progress by and large is said to be good.

In Madhya Pradesh the programme seeks to cover 15 of 45 districts. The Centre's latest report claims commendable improvement in the field work during the last six months. In respect of Haryana and Gujarat the Centre's assessment cites the latest reports of the World Bank Supervisory Mission to say that there is commendable improvement in the field work in the two States but the progress in civil works is practically nil in Haryana and extremely poor in Gujarat.

By the end of the Sixth Plan, the Ministry hopes to take the T & V programme to 15 States.

Farm Financing in Bastar District : Problems and Prospects

T. S. Ramachandran*

BASTAR DISTRICT which has recently been elevated to the status of a Division, comprises the erstwhile princely states of Kanker and Bastar. The geographical area of the district is 39,171 sq. kms. Incidentally this happens to be the third largest district in India. According to 1971 Census 96 per cent of its population lives in rural areas spread over 3,676 villages. Scheduled Tribes population accounts for 68.21 per cent of the total population. The concentration of tribal population is a rough indication of the comparative backwardness of the area. Eighty-eight per cent of the district's working force is engaged in agricultural activities.

The distribution of land holdings in Bastar district is inequitable. According to Agricultural Census 1976-77 the area and size of holdings are given in the following table.

Table

Area and size of holdings in Bastar district

(Number of thousands, Area in thousand hectares)

Size of holding 0—1		1—2		2—4		4 to 10		10 & above		Total		Average size of holding
No.	Area	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area	
42	19	28	41	41	126	48	302	22	400	184	888	4.8

Sixty per cent of the holdings are below 4 hectares. The average size of holding comes to 4.8 hectares which may appear to be big. There are two limitations to the comparatively larger size of holdings on actual earnings of the cultivators which are not revealed from the above statement: The poor soil, lack of irrigation facilities, practically no capital investment in land improvement and subsistence farming producing low value crops diminish the value of earnings from the land.

The second limitation relates to a feature obtaining in the district in regard to maintenance of Land Records. It is a peculiarity of this district that generally holdings are recorded in the name of the eldest male member of the family with the rest of the members cultivating the land as co-sharers. In most of the cases there is an informal partition of holdings among the co-sharers. In some cases the entire land holdings of the villages are recorded in the name of Patel and the rest of the village cultivate the land as co-sharers.

Institutional and non-Institutional credit

Another special factor which is exploitive in character is the hold of Kochiyas on tribal way of life. Tradition continues to be important for most tribals and therefore, they get bound to a trader who is always a non-tribal outsider money-lender. He is the main source of finance for meeting expenditure on social functions as in birth, marriage, death etc., at exorbitant rates of interest.

In the wake of emergency in 1975, the activities of these private traders in the district were severely curbed. As has been found out in the State Government's Tribal Research Institute's study, exploitation takes away more than 20 per cent of the total annual earnings of the tribal cultivator. If an effective check is applied on exploitation, their economic amelioration can become easier.

The role of the institutionalised agencies in the provision of agricultural credit and allied services, is admittedly poor in the district. Consequently, the tribals by and large are indebted to money-lenders or money-lender-cum merchants|traders. The need to approach the latter arises primarily for obtaining the basic necessities of life and also for such social obligations as marriage, birth or death ceremonies. An institutional agency, preferably in co-operative sector has to be created to cater to the credit needs of the tribal cultivator for his agricultural inputs, as well as for basic necessities of life.

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The problem of high level of defaultors has been the major cause of stagnation in business of existing co-operative institutions in the district. According to the study team the present over-dues of the co-operatives in the district form 78 per cent of the total loans outstanding. Indiscriminate disbursement of taccavi loans in the form of paddy seeds and fertilisers and the resultant malpractices/misappropriations were the causes of this steep rise in outstandings.

The quantum of defaults per individual cultivator is very small in this district. Average amount of default is as low as Rs. 21 in Sukma branch and the highest was Rs. 123/- in Narayanpur Branch.

Credit Requirements

After detailing the social, institutional and other problems pertaining to farm financing in the district, we may now proceed to estimate the credit requirements of the area. For assessing the credit needs it is proposed to utilise the formulae and plans of various study groups/institutions and in the end try to work out a credit plan for the district.

In a paper on organisation frame-work for the implementation of social objectives, Professor Gadgil's study group had worked out credit requirements of the farmers under various methods. The Gadgil Study Group of the National Credit Council has made suggestions for the development of credit and banking in the country on the basis of local conditions and recommended the adoption of 'area approach' to evolve Plan and Programmes for extending credit. Gadgil Study Group's Method II and III are relevant to Bastar's conditions. Gadgil Study Group Method II has estimated borrowings at Rs. 36.04 per hectare at 1961-62 prices for current farm expenditure. Providing for four-fold increase in prices, the requirements per hectare in 1977-78 work out to Rs. 144.16 per hectare. Excluding an area of about 10,000 hectares under high yielding varieties the short-term credit requirements of the remaining area of 8.74 lakh hectares will work out to Rs. 1130 lakhs. Credit requirement of the area under high yielding varieties programme at Rs. 2,000 per hectare works out to 200 lakhs. Thus the aggregate short term production credit requirement of agricultural sector can be fixed at 1330 lakhs. Gadgil Study Method III has been followed in certain IADP areas surveyed by Reserve Bank of India in 1965-66, and borrowings have been calculated at Rs. 57 per hectare. Allowing for price increase the credit requirements at current prices may be placed at Rs. 85 per hectare and the total requirement of the district will amount to Rs. 674.90 lakhs.

By adopting the Rural Credit Committee method credit needs of the district work out to Rs. 212.68 lakh. The Datey Committee has estimated the credit requirements of Bastar Farms at Rs. 584.88 lakhs per year at the rate of Rs. 250 per hectare of irrigated and Rs. 75 per hectare of unirrigated areas. The Bastar District Co-operative Bank estimates the needs at Rs. 1809.42 lakh. The Bastar District Credit Plan (1974-75 to 1978-79) proposed by the State Bank of India, the lead bank in the district, puts the total requirements at Rs. 739.650 lakh.

Suggestions

The above methods suffer from the handicap of inadequate appreciation of the realities of the situation and the historical background. The people in the area are averse to taking any loan for any purpose and diffusion of innovative practices is very slow. The criteria adopted for the standard district are not relevant to this district. Before moving for high yielding varieties of crops it is safer to go in for improved seeds for the next decade and also engage ourselves in propogating intermediate technology rather than the sophisticated modern technology assumed by the various study groups and agencies listed above. The habit of banking should be inculcated in the minds of tribal youth and branches of commercial banks opened near the youth hostels. The youth of the district should be motivated to obtain finances for productive purposes from the banks and intensive efforts made to dispel the fear of the people of the area about financial institutions. Once the advantage of larger investment in farms is known to the tribal youth, who are more receptive, the idea will catch fire and the entire agriculturist class will readily avail themselves of the finances. Legislative measures are required to do away with malpractices of charging exhorbitant interest and appropriation of tribal properties. Once the tribals are convinced that the finances from institutional and non-institutional sources are for their benefit, investments on farms will increase.

There are about 1,84,00 hectares in the district and according to survey results each house-hold currently requires finance at the rate of Rs. 21 per hectare. The total credit requirement per year will be 160 lakh. With the suggested adoption of intermediate technology, it is expected that an amount of Rs. 572 lakh at the rate of Rs. 750 per hectare will be required for the district per annum. □

Development of Energy Sector

(*continued from page* 12)

India consist primarily of firewood, cow dung, and vegetable wastes. These non-commercial energy sources account for at least half of the total energy consumption in India. Besides commercial and non-commercial energy sources, there are other possible sources of energy which are as yet largely untapped in India as elsewhere, because of limitations of existing knowledge and techniques. The main examples are solar energy, geothermal energy, tidal power and wind power.

The developing countries should find alternate, renewable and easily accessible energy sources to meet their energy requirements. Since energy availability is a crucial factor in the poverty syndrome, it is necessary to use a suitable mix of renewable non-conventional energy resources. This calls for time-bound action plans □

REC's Achievements in Rural Electrification

R. R. Rao*

THE Rural Electrification Corporation has assisted to electrify over 19,900 villages and 1.92 lakh irrigation pumpsets during 1980-81. Thus the targets of 16,500 villages and 1.91 lakh pumpsets have not only been achieved but exceeded. The Corporation has continued to give preference to schemes which increase agricultural production through utilisation of ground-water. Nearly 500 projects involving a total loan assistance of Rs. 165 crores have been sanctioned during the year envisaging energisation of 2.4 lakh irrigation pumpsets. Out of this amount, REC's share is Rs. 55 crores and the rest is provided by the Agricultural Refinance and Development Corporation and commercial banks.

The Corporation's financial assistance has been focused on the underdeveloped and backward areas. As much as 60 per cent of the total disbursements of the year have been made for backward areas During 1980-81, Rs. 36 crores were sanctioned for the development of tribal areas. For the electrification of Harijan bastis, as many as 153 projects were approved involving a loan assistance of Rs. 7 crores. To promote decentralised distribution of power in rural areas on cooperative basis, the Corporation has sanctioned another five projects during the year raising the total of such cooperatives to 21. Some of these cooperatives, have launched special programmes to provide domestic light to landless labourers and other weaker sections of the society at a nominal cost. The Corporation has earned a net profit of Rs. 7.2 crores as compared to Rs. 5.9 crores in 1979-80.

More than 1030 new REC Projects have been sanctioned which represent an increase of 34 per cent over the previous year's level. The financial assistance has been of the order of over Rs. 260 crores which is Rs. 50 crores more than the figure of the previous year. During the year the Corporation disbursed a record amount of Rs. 184 crores compared to Rs. 167 crores in the previous year. The new projects sanctioned cover all the 22 States including Sikkim which figured on the REC map for the first time. Almost all the districts in the country (370 out of 378) are now covered by the REC projects.

In the country 260,000 villages out of the total 570,000 have been electrified. In seven States all the villages have been provided with power whereas seven States have 80 per cent of villages electrified. In the remaining States the pace of energisation has been at different levels.

The Corporation has received a credit of $ 157 million and $ 175 million from the World Bank in the past and negotiations are now on for the third credit which can be between $ 200 and $ 250 million. This is for the project to electrify 18.000 villages and to energize 550,000 pumpsets. The World Bank assistance will meet a part of the expenditure, and the balance will be met by the Central Government. The Sixth Plan provides an outlay of Rs. 1,860 crores to extend electricity to 100,000 villages and to energize 25 lakh irrigation pumpsets. Of this, Rs. 1,180 crores are to be funded through the REC for electrification of 98,000 villages and energizing 16 lakh pumpsets.

The Corporation has been experimenting on providing alternative sources of energy to our villages. Few solar operated pumpsets have been established and 20 community biogas plants installed at various villages in India. About 40 villages in Raichur district get electricity produced from agricultural waste. ☐

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*Our Correspondent

Solar Energy to Raise Soil Fertility

THE secret of the fertility of the black soil, the richest of all is the high content of the organic substance humus. Humus provides the plants with the needed nutritive substances and creates the most favourable soil structure for them. It has become clear that humus contains the accumulated solar radiation, which is a very important factor. Facts shows that solar energy is the motive force of all processes occurring in the soil.

Although research into the energy of soil formation has only started, it has become clear that there is an opportunity to "design" soils with pre-set properties and a productivity which nature cannot rival. To achieve this we will have to "teach" plants how to make the most of the solar energy contained in the soil and the reserves of which can be controlled. The Azerbaijan Institute of Soil Science and Agrochemistry is successfully testing fundamentally new plant growth stimulants. They are humic acids—the chemical compounds formed in humus—actuated by ultra-violet radiation. These compounds contain the main energy charge of the soil. The first experiments with the "solar" stimulants have yielded excellent results : the vegetable yield has increased by 20—30 per cent and ripening period is reduced by 15—20 days.

(Soviet Features)

Seven Thermal Power Stations by 1995

SEVEN major thermal power plants will be set up by the National Thermal Power Corporation (NTPC) by 1995. These stations will be located at Talcher in Orissa, Kahalgaon in Bihar, Waidhan and Pench in Madhya Pradesh, Bhadrachalam in Andhra Pradesh and one in U. P. This was stated by Shri A. K. Shah, Chairman and Managing Director of the NTPC recently at New Delhi.

These stations, when commissioned will have total capacity of 1500 MW and account for more than 30 per cent of the thermal capacity additions until 1990. Of these the first stage of 1,260 MW of the Waidhan project, which is near completion has been taken up with Russian assistance. ☐

Hereditary Diseases :

Detection and Cure

ACCORDING to the World Health Organisation (WHO), about five per cent of children in the world are born with hereditary defects.

Genetic engineering is expected to be most helpful in curing hereditary diseases. A number of human genes have already been synthesized, conditions have been determined for introducing them in the cell, and it has been proved in principle that the genes can function normally there. But work in the field of genetic engineering is still in its initial stage. Serious theoretical and practical investigations still need to be conducted. We obviously do not know enough about man's heredity, and it is not clear how a genome, a set of chromesomes in a germ cell, will react to the introduction of additional genetic information.

Early Diagnosis

In the treatment of hereditary diseases early diagnosis plays the main part since in most cases effective medical aid is possible only at the very beginning of the development of a disease. For example, phenyiketonuria—the gravest hereditary disease which affects approximately one out of 10,000 people. It becomes manifest in infancy and is characterised by idiocy, convulsions and poor pigmentation of the skin. But if the disease is diagnosed very early, not later than a month after birth, and a diet that excludes phenylalanine (the amino acid contained in the monther's milk and dairy-products) is prescribed, then the child will develop normally both mentally and physically. Disease-prevention measures in this case are very simple. Mass screening is useful in those hereditary diseases for which therapy methods exist.

But there are many ailments which medicine cannot yet cure. However it is important to diagnose such diseases even before the chld is born. One of the most important achievements of medical genetics in recent years is the elaboration of methods to reveal the covert carriers of the disease, that is, people whose mutant gene that causes the disease is latent. The carriers of mutant genes are usually healthy people who are not aware of their defect. But they can produce a sick baby. Therefore, identifying the latent mutant gene is of particular value in forecasting the health of the future children. Today geneticists can diagnose more than 200 varieties of such agents

Prenatal Diagnosis

Geneticists are now working on the improvement of methods of prenatal diagnosis. For example, the method of amniocentesis, which is most widespread today, makes it possible, in the 13th—15th week of pregnancy, to obtain a sample of amniotic fluid which contains the cells of the embryo. The investigation of these cells makes it possible to diagnose any of the existing chromosome diseases and any of more than 60 metabolic diseases. This method provides a definite and not a probable forecast, which is particularly important for families with a history of hereditary diseases.

Today geneticists can do more than recommend birth control for families with a history of hereditary diseases : they can disclose a disease in the embryo and, at the consent of the parents, terminate a pregnancy or, if the methods of therapy already exist, they can start treating the fetus in the womb.

(*Soviet Features*)

Youth Club of Hondarabalu

V. S. Suryanarayana*

SRI Siddeswara Youth Club of Hondarabalu village in Kollegala taluk was started in 1977 with sixty youths as members. They provide the health check up for the women and children in the village and necessary assistance for the grant of old age pension to the deserving persons. They have started a shishuvihara also for the children.

The members of the youth club took up tree planting on a large scale. As a result of their incessant labour, the five acres land near the village is full of lush green bushes. They have started a forest nursery also. The forest department of Karnataka has also extended a helping hand to these youths. Thus they have reared 50,000 sapling of various trees which are ready for planting now. A pond in the outskirts of the village has been cleaned and used for fishery. The plump fishes reared in the pond are a source of income to the youth club.

The most impressive work taken up by enthusiastic youths is the construction of a huge community hall. This hall is constructed at an estimated cost of Rs. 2 lakhs. The youth club office, Nursery for children and a Kalyana Mantapa are housed in this large building. The Government has also provided some assistance in the construction of this building under 'National Rural Employment programme'. Naturally Siddeswara Youth Club is considered as a model in the neighbouring villages. It was declared the best youth club of Mysore district for 1980-81 by the Department of Youth Services and Sports, Karnataka Government and a prize has been awarded to it. ☐

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STEP BY STEP

Social Integration of Tribals Karbis of Assam

KARBI tribals, about 6.5 lakh, are scattered all over Assam and are fast moving towards social integration with the rest of the nation. Take the example of Parmohi Mainakorong village near Gauhati. Fifteen years ago there was no school in the village. Now 200 students are attending the village primary school. The Head Master of the school J. K. Kathar is a local Karbi. Fifteen boys and five girls are studying a High School, six kilometres away from village. Three students are studying in colleges in Gauhati. They are getting scholarships from Central Government.

The generally good health of the children shows that the residents are taking full advantage of the Government dispensary in the village.

Traditionally the Karbis are agriculturists. But the younger generation is keen to take up self-employment schemes. The Karbis want to diversify their vocations under the existing schemes administered by the Rural Development Agency. Most of the Karbis understand Assamese, English and Hindi.

Save Grain Campaign

THE Haryana Agriculture Department's intensive "Save Grain Campaign" launched sometime ago to educate and motivate the farmers to adopt scientific post-harvest technology for storage of food grains has benefited thousands of farmers in 2,000 villages so far covered. The Department is expanding its extension programme to cover the remaining villages.

During the campaign, a team of experts of the department imparts training and gives on the spot demonstration to the farmers in the selected villages of the State.

According to a Survey, it has been estimated that ignorance about the post harvest storage technology amongst the farmers, who handle 60 to 70 per cent grains, results in losses of food-grain valued at crores of rupees.

Poutlry Production Up in Haryana

POULTRY production in Haryana has jumped to 177 million eggs during the current year as against only 40 million a decade ago. This has been possible by multiplying the number of incentives and facilities to those engaged in poultry farming activities.

New poultry units have come up all over the State, especially in Ambala, Karnal, Kurukshetra and Gurgaon districts. With this the poultry population too has risen to 16 lakh mark as against 4.79 lakh at the time of formation of Haryana.

ITDC Goes International

THE India Tourism Development Corporation (ITDC) is now engaged in a joint venture project for a new 5-star hotel in Cyprus and also two hotels in Iraq. Together they are estimated to cost a little over Rs. 40 crores and expected to be completed in about two years. The Mosul and Dokan hotels in Iraq are turnkey jobs which on completion will be handed over to the Iraq Government. The Limassol Hotel, on the other hand, is a joint venture with a Cypriot company Lotus Hotels Ltd. ITDC will also provide management services for this hotel. □

Rites Aid Ircon perform better

RAIL India Technical & Economic Services Limited (RITES) and Indian Railway Construction Company Limited (IRCON), under the aegies of Ministry of Railways, have fared well during 1980-81 both in terms of profits and turnover.

RITES achieved a turnover of Rs. 106 million in 1980-81 as compared to Rs. 87 million during the previous year, earning a net foreign exchange of Rs. 22.7 million, besides repatriation of about Rs. 20 million by the exports. The net profit of the company also increased from Rs. 24 million to Rs. 27 million.

IRCON has secured the prestigious contract in Iraq, of the value of Rs. 2240 million, for the construction of a new railway line.

The work-load of the company has increased to Rs. 693 million in 1980-81 from Rs. 342 million in 1979-80 while its turnover has increased to Rs. 95 million from Rs. 50 million in the previous year. The net profit increased to Rs. 4.5 million compared to Rs. 1.5 million in the previous year. This has enabled the company to declare a dividend of 10 per cent on its paid-up share capital. □

Ayurvedic Drug for Arthritis

SALAI GUGGAL is an ayurvedic drug well-known as *kundru*. This drug is described in authentic ayurvedic classics and said to be effective in rheumatic conditions. Research on modern scientific lines has been carried out recently by a professor of Government Medical College, Jammu and it is claimed that the drug has been found to be most effective for treatment of arthritis without any toxic or side effects. □

Bharat Gold Mines Makes Profit

THE State-owned Bharat Gold Mines Limited, made a profit of Rs. 6.03 crores in 1980, the year of its centenary. This practically wiped out all the past accumulated losses of the company. During 1979-80 it made a profit of Rs. 3.7 crores.

TRENDS

Electronic Phone System Coming

THE Posts and Telegraphs Department has drawn up a comprehensive plan for introduction of electronic switching system in the country on large scale in the present decade. This switching system employs electronic components and devices which have a much higher reliability. The existing crossbar and strowger types of switching systems working at present in the telecommunication network in large numbers use electro-mechanical components which get worn out requiring frequent adjustment and maintenance.

Consequent upon the introduction of electronic switching system in the network beginning in 1982-83, the performance of the metropolitan telephone systems, where the electronic system will be introduced first, is expected to show gradual improvement.

The objectives of the perspective plan (1980-90) are to provide telephones and telex connections practically on demand; full automatisation of the local telephone exchange network; Replacement of all life expired exchanges and other equipment in the network, as and when due; Provision of subscriber dialling facilities on an integrated STD trunk network between all cities and towns with a population of 50,000 or more; Provision of subscriber dialling facilities between all telephone exchanges within a secondary switching area (a secondary switching area is co-terminous with boundaries of one or two Revenue Districts); and extension of telephone service either through a telephone exchange or long-distance public telephone to within 5 Kms. of most inhabited locations in the country.

It is proposed to set up an electronic switching factory at Palghat for manufacture of 60,000 lines of digital TAX equipment along with 50,000 lines of rural automatic exhanges and 40,000 lines of PABXs.

It is proposed to open 8,000 new post offices in rural areas during the sixth Plan period. In addition, counter facilities will be provided to 10,000 more villages through mobile post offices.

Protection of Forest Areas

THE Government of India will soon bring a new law to punish illegal felling of trees in forest areas. This was stated by Rao Birendra Singh, Union Agriculture Minister in Rajya Sabha, recently. During the Sixth Plan period a sum of Rs. 692.2 crore has been allocated and 2.15 million hectares will be brought under plantation with a view to providing firewood to the society. The Forest Research Institute is engaged in research on certain species of trees and 'babul' plantation is one of them, he added.

There is no blanket ban on felling of forest trees in any State. However, various restrictions in this regard are in vogue in States. Strengthening of infrastructure in forest management like providing better service conditions to staff and modern equipment are under consideration of various state and Central governments. The proposals under consideration include incentive and awards for meritorious service and providing the staff with fire-fighting equipment logging tools etc. and making them more mobile.

Rao Birendra Singh also said that a Central scheme of Forest Survey of India (FSI) had been launched in 1981-82 and one of the objectives of the FSI was to compile statistics of the forest areas in the conutry on a 10-year cycle by aerial photo-interpretaion. It will give details of denuded areas. The scheme will cover one-tenth of the forest area in the country every year.

Fish Farming to Employ 200 Persons

THE Fisheries Department, Haryana, has drawn up ambitious plans to provide means of self-employment through fish rearing to over 200 persons in the State at a cost of Rs. 50.82 lakh during the year 1981-82. This was disclosed in Chandigarh recently by Shri Khurshed Ahmed, Fisheries Minister, Haryana.

Already 30 fish farmers have been imparted training in fish rearing technology and another 89 have been provided with financial assistance.

Houses for Industrial Workers on Easy Terms

HARYANA Housing Board has formulated an ambitious plan to provide houses for workers employed in factories in the industrial estate in Dundahera and Panchkula. The category of the house to be built and allotted will depend on the income drawn by each employee on a given date. One of the conditions in these schemes is that the industrial worker should be resident of Haryana or should have worked in the State for the past six months.

Reservation of Houses for Backward Classes

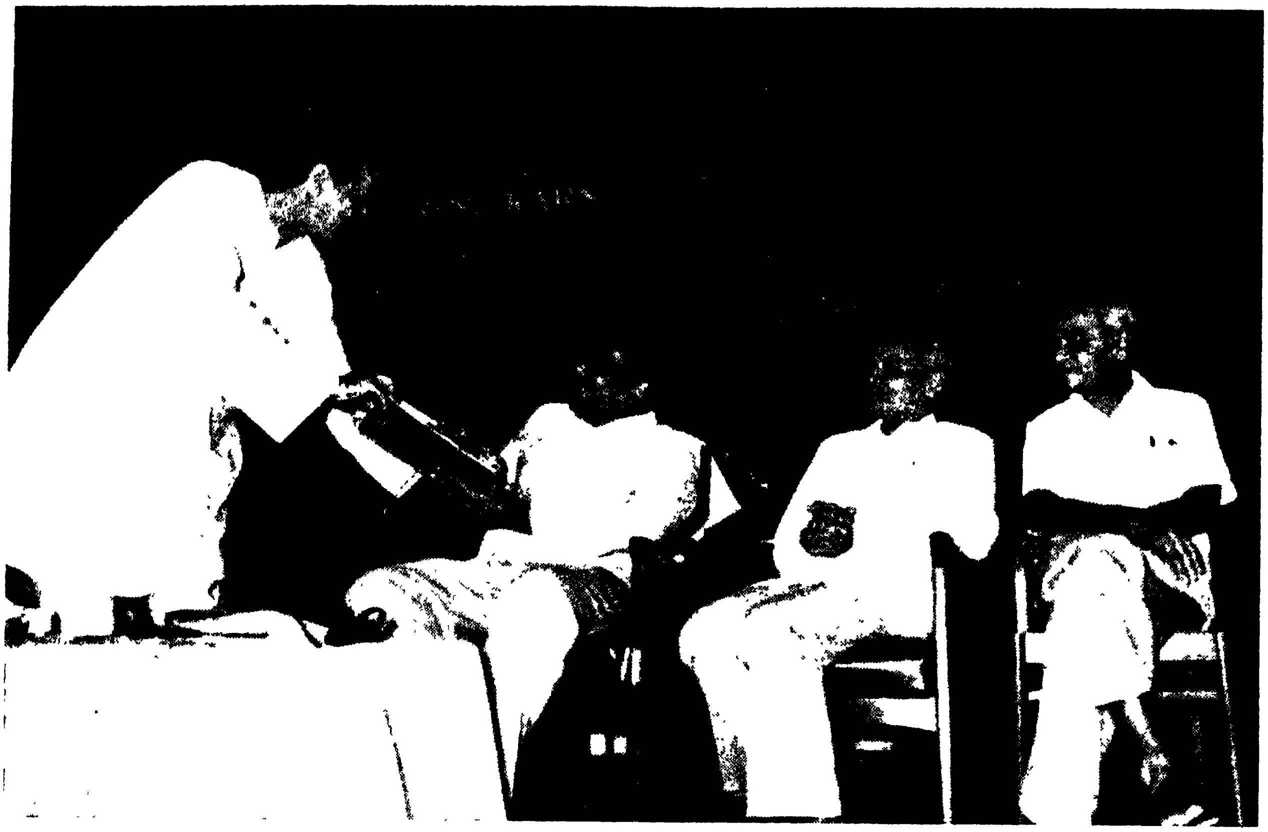
HARYANA Backward Classes Kalyan Nigam has reserved 4 per cent of the LIG houses constructed by the Haryana Housing Board on hire purchase basis for members of the backward classes. The scheme was launched at Faridabad. More houses will be given to the members of the backward classes from the reserved quota as and when houses are constructed by the Board all over the State.

Priority to Ongoing Plan Projects

THE Planning Commission has asked the States to make a realistic assessment of the major Sixth Plan schemes/projects in the formulation of their annual plans for 1982-83. They should give adequate priority to the ongoing projects so that the plan targets are achieved.

The Member-Secretary of the Planning Commission, Dr. Manmohan Singh, in his letter to State Chief Secretaries, has said that, it being the mid-year of the Sixth Plan, "it had to be ensured that the Plan activities are strictly time-bound and completed within the Plan period, so as to avoid time over-runs and consequently cost over-runs."

To mitigate the shortage of fuel and energy, he said, greater emphasis should be laid down on extensive plantation of quick-growing species of trees under the social and farm forestry programmes and setting up of bio-gas plants and other sources of energy. The States must give adequate importance to the timely completion of irrigation and power projects. Better performance in agriculture would obviate the need for imports even where these are resorted to as a short-term measure.



Shri Vasant Sathe, Union Minister for Information and Broadcasting is seen releasing the book "Exploring Karnataka" at a function held recently in New Delhi. Also seen in the picture are (left to right sitting) Shri R. Gundu Rao, Chief Minister of Karnataka, Shri H. Y. Sharda Prasad and Shri T. S. Satyan.

Karnataka : A Three Dimensional View

Review Article

I. Ramamohan Rao

KARNATAKA is the name of one of India's 22 States which accounts for a sixteenth of the area of India and a population of 37 million. Its language is Kannada. The people are Kannadigas, who have as their neighbours Maharashtrians and Goans to the north, Andhras to the east and Tamils and Keralites to the south.

That is how Sharda Prasad introduces his State to the non-Kannadigas in the "Picture Book" published by the Karnataka Government, with photographs by T. S. Satyan, which have been put together by T. S. Nagarajan. There could not have been a better combination in a venture of this nature : the final product provides one with a three-dimensional view of the State. Sharda Prasad looks at his State like the *Garuda* bird flying in the sky, high but not too high, saying so such in so few words—about the land and people, language and literature and likes and dislikes of its natives. The camera of Satyan lingers lovingly on the beauty of the State—natural and architectural, ancient and modern—which encompasses within its fold the Gondwana Plate, the oldest land on earth, and the newest Parasurama land, the coastal belt created by the *avatar* of Vishnu by hurling his battle axe into the Arabian Sea—both separated by the lofty, wooded Western Ghats. The photographs have been put together with delicate care by Nagarajan and the final result is as delicious as the Karnataka eatable the *bisi bele huli anna,* which is "created" out of dal, tamarind, chilli powder and *dalchini* and "considerable poise".

Situated, as it is, in the centre of Southern India, Karnataka presents a synthesis of many cultures. The Kannadigas have shared experiences for centuries with their neighbours, the Maharashtrians, Tamils, Telugus and the Malayalees. That is perhaps one reason why one cannot identify a Kannadiga, as one would a Tamil, a Punjabi or a Bengali. He lacks a tell-tale regional accent. He is, as Sharda Prasad

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'Exploring Karnataka' Published by the Department of Information and Publicity, Government of Karnataka. Price Rs. 100. Pages 190.

says, somewhat hesitant, unaggressive, reticent person. Whatever aggressive spirit the Kannadigas possessed, spent itself out in the imperial exertions of Chalukyas and Rashtrakutas. This land between the Kaveri and Godavari became the home of saint poets like Basaveshwara, Purandaradasa and Kanakadasa. It was in Sringeri, in the foothills of the Western Ghats, that the Great Sankara settled down. Jainism flourished for centuries in the State, which perhaps has the highest number of Jain monuments in the country.

Basaveshwara spearheaded the *Veerasaiva* movement, which discussed religion in native Kannada language, instead of Sanskrit. The result was an "explosion"—not only in the sphere of religious reform, but in Kannada literature as well. The *Vachanas* of Basava are relevant even today—one could be "reading Gandhi", while going through them. To quote one of Basava's *Vachanas* :

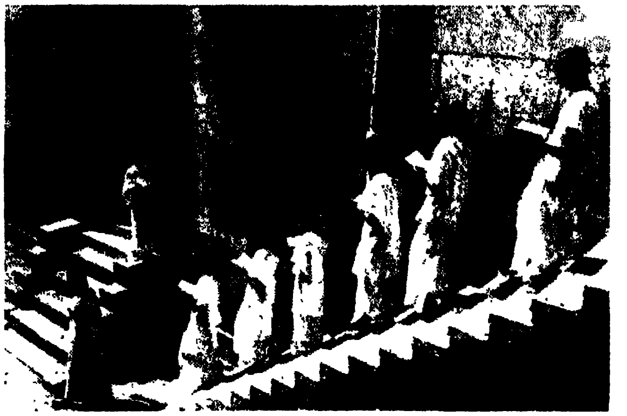
> *The root is the mouth*
> *of the trees; pour water there*
> *at the bottom*
> *and, look, it sprouts green*
> *at the top*
> *The Lord's mouth is his moving men*
> *feed them. The Lord will give you all.*

Purandara Dasa, one of the great saint poets of Karnataka started his life as a goldsmith in Poona. He is credited with the authorship of 475,000 songs.

The trend continues to this day. The Capital city of Bangalore is the most cosmopolitan in the country. Not many people know that many among highly talented Hindustani musicians hail from Karnataka—Mallikarjun Mansoor, Gangubai Hangal, Bhimsen Joshi, Kumar Gandharva, Basavaraj Rajguru, to name only a few. Or, to take the other side of the coin, almost one half of the noted Kannada authors speak some other language at home. To quote Sharda Prasad : "The very first President of the Kannada literary conference, H. V. Nanjundiah, spoke Telugu. Among the giants of yesterday, D. V. Gundappa's mother tongue was Tamil, so was Kailasam's. Govinda Pai's was Konkani and Muddana's Tulu. But whatever their mother tongue, they considered Kannada to be their tongue—and in turn the Kannada people accepted them without any mental reservation." And the Kannada language, which is the second oldest among the mother tongues of India has given as well as borrowed profusely from Sanskrit and the other languages, including Urdu.

In modern times Karnataka—or its fore-runner Mysore—got the reputation of being a "model state", mainly because of the efforts of Visveshvaraya, to whom goes the credit of having established, among other things, a steel plant and a multi-purpose hydro-electric project. The capital of the State, Bangalore is fast growing into an industrial city; you name any industrial venture it has one : machine building (HMT), aircraft manufacture (HAL), electronics (BEL), etc. etc. So is Mangalore, the port city, developing as a major export centre following the giant Kudremukh iron ore project. Thus the State could boast of the basic metal of iron and the most valuable one gold, from Kolar.

Satyan's camera has captured the ancient as well as modern monuments at Badami, Belur and Pattadakal—rightly called the nursery of Indian temple art—and the land and its people. The very first plate, of the Tunga river at Tirthahalli has the rocks looking like sand in slanting light. One could never live of looking at the sunset at Kemmanagundi in the Western Ghats (plate 13) or the panoramic view of the Malanad paddy field near Sringeri (plate 20). In sharp constrast is the bright red carpet from a bumper harvest of chillies spread in the sun by the farmers of Dharwar on the countryard and the roof for drying in the sun (plate 25). The ornate durbar Hall of the Mysore Palace, which is empty but for a sweepress cleaning the floor, makes one feel nostalgic (plate 28). The study of faces from different parts of Karnataka have some hauntingly beautiful potraits (plates 91-94 and 102-103).


Some students in Sanskrit Academy, Sringeri (Photo reproduced from the book "Exploring Karnataka")

The beauty of the Vidhan Souda (the last plate in the album) however does not get enhanced by the close up of the Yoga exponent. Nor does one understand why prime of place has been given to the painting of Tippu Sultan's sons being offered as hostages to Lord Cornwallis in 1791, unless of course they have been added as the curd-rice which follows the pudding in the traditional Karnataka meal, only to heighten the sweetness of the sweet that preceded the course. Incidentally the way Sharda Prasad has described the Karnataka cuisine makes one's mouth water—no wonder it was given to the Udipi Brahmins of Karnataka to colonise the whole of India with their cooking skill, giving a national status to *Idli Sambar* and *Masala Dosa.*

Exploring Karnataka is the third in the series brought out by the Karnataka Government. The first one "The Open Eyes—a journey through Karnataka" was authored by Dom Moraes with drawings by Mario; the second, "The Emerald Route", was written by R. K. Narayan with sketches by R. K. Laxman. The present "Picture Book" completes the "trilogy" as it were. A pious wish : the Karnataka Government may consider bringing out a cheaper edition and make it widely available in the country.

The introduction says that words are "extra" in this picture book. They are for those who concede that although a picture is as good as thousand words, words can reach some places that are beyond the camera. To put it slightly different, I would say that the words by Sharda Prasad have provided the *moggina jade* (garland) to the pretty face of Karnataka revealed to us by Satyan. ☐

BOOKS

Working Children

Working Children in Bombay—A Study by Musafir Singh, V. D. Kaura & S. A. Khan; published by National Institute of Public Cooperation & Child Development; New Delhi; 1980. Price Rs. 50.

THIS study of working children in Bombay in the age group of 6—15 years, is a timely publication drawing attention of the contemporary society to the scourge of child labour, most of the children beginning to work by ten in a metropolitan, urban area. Not only is the destiny of these children doomed because of the bleakness, malnutrition and morbidity that their situations impose upon them, but the future of the nation and the country is effected negatively.

The study portrays the various facets of the working children, probing in socio-economic factors which compel the families and their children to join the labour force. Being totally unorganised, child labour is unashamedly exploited. As a matter of fact these children should be at school instead of wasting their life and wrecking their future.

The project has highlighted the problems of the working children on the basis of a sample of 300 which naturally, makes the perspective somewhat limited. But the sample does bring out the seriousness of this social problem which must become a concern for all. 33.3 per cent of them had never been to a school. Sadly, these victims of industrialisation and urbanisation are from the rural areas in a large number, occupying the lowest rung of the country's socio-economic ladder in a pitifully marginal existence. 47.4 per cent of the families were steeped in debt; 88 per cent were migrants from the rural areas. The chapter on the socio-economic profile of the families of the working children makes a piognant reading—the male children shouldered the family's economic responsibility—9 per cent in the age group of 6-9, 39 per cent between 9-12 and 78 per cent between 12—15 years, 96 per cent of "the eldest children in the family" had invariably to work irrespective of sex. The children contributes 23 per cent of the family income. 71.3 per cent of these children were Hindus, 58 per cent of whom belonged to the scheduled Castes, 21.3 per cent Muslims and 2.7 per cent were Christians. Although only the sample of 300 had been studied, the profile is significant.

The discussion of the relevant legislation in Chapter X is rather informative and points out some of the constraints that affect their implementation. The employers are generally ignorant of the existing laws as the study detected, (p. 267). Only 18.6 per cent were "dimly aware of the existence of such laws" (p. 267).

Among the several suggestions put forth by the study, the sensible one is a warning against the rash abolitionist measure that would aggravate the misery without solving the problem. The emphasis is rightly on the removal of adverse and unhealthy conditions attendant on child labour: on a network of formal or non-formal education centres in the slum areas; and on vocationalising school education to subserve the future work-needs of children.

The book is an eminently readable one. The content is enhanced by the addition of tables, charts and statistics. It should disturb every sensitive reader and compel him to look at this problem anew, once again.

Anima Bose

Urban and Regional Planning Policy

Urban and Regional Planning Policy in India by Shri R. K. Wishwarkarma; published by Uppla Publishing House; New Delhi; Pages 214; Price Rs. 75.

FOR various reasons, there have not been adequate books relating to the area of urban and regional planning policy in our country. Development planning has changed its orientation and structure all over the world and these changes are also reflected in India. The problem of environmental protection and socio-economic justice are emerging as new facets of development policies and the problems of decentralisation are becoming very important. In this context, the area of urban and regional planning policy in the country is assuming increasing importance. Shri R. K. Wishwakarma's book in this context is a welcome addition to an important subject.

The book is in 13 chapters and also includes a selected bibliography. The author, after outlining the conceptual framework for development planning and identifying some relevant concepts and definitions, as dealt with the objectives and values of planning and development and the key issues in regional planning. The author emphasises in this book that only a more decentralised but integrated economy, which takes into account the regional considerations, would be conducive to achieve the socio-economic objectives of the country. According to him, the national goals may be more adequately and scientifically achieved by a regional approach to the problems and by regional decisions, synthesising the regional and national requirements for the common good. This regional approach would have to be within the national framework, so that consistency and continuity can be maintained and that regional considerations may not come to be looked upon as parochial interests but subserving the objectives of national development. The major contributions lie in chapter 10 "Urbanisation and Economic Development" and Chapter 11 "Urban Informal Sector : Concepts Policy, Issues and Measures". There is a good discussion on the relation between urbanisation, industrialisation and economic development. The discussion on national urbanisation policy is also quite interesting. After discussing the size of the informal sector in the urban area, the author has put forward some important policy measures to tackle this problem. The problems of management of economic growth and the policy implications have also received attention in the last chapter of the book.

The book deals with many controversial issues in urban and regional planning and as such, one may not always be in agreement with the author's opinion. But as Shri T. N. Chaturvedi has, in his forward, pointed out the book "does provide an intellectually stimulating fare even in areas of possible disagreement." The book is a valuable contribution to policy issues relating to urban and regional planning.

K. V. Sundaram

IYDP Programme

THE schemes of integrated education for the handicapped children has been revised and necessary infrastructure is being laid to make it a success. Separate allocation has been made for programmes of the rehabilitation of cured leprosy patients, the number of employment exchanges and education training centres have been increased and rural rehabilitation centres have been sanctioned, for the first time. This was stated by the Minister of State for Education and Social Welfare Smt. Shiela Kaul, at the meeting of National Committee on IYDP recently in New Delhi

Smt. Sheila Kaul, Minister of State for Education, Social Welfare and Culture, presiding over the meeting of the National Committee of IYDP held recently in New Delhi

Referring to the reservation of posts for employment of handicapped persons in Government and public sector undertakings, the Minister pointed out, that apart from the Centre, 20 State Governments have also issued reservation orders. Self-employment ventures, she said, are also being promoted by increasing institutional finance and new schemes formulated by banks and various concessions given to the disabled persons such as reservation of telephone booths, petrol pumps and gas agencies. The Ministry of Social Welfare, Smt. Shiela Kaul said, was working out a scheme of establishing rehabilitation centres all over India.

A Newspaper for Semi-literates

IN SPITE of the mushroom growth of colleges and universities, the semi-literates continue to suffer for they have very little chance to read and derive some benefit from the knowledge thus gained. The main reason is the lack of suitable reading materials So, for all practical purposes they remain as good as the illiterates.

To help such people, the local newspapers have a great role to play. Unfortunately, none of these have ever paid any heed to this need. The local newspapers are the cheapest readnig material and recently, there has been a mushroom growth of such dailies. For example in Orissa, consisting of 13 districts, there are almost as many small Oriya news papers. All these are of similar type and mainly publish political news and views. Such papers do not serve the needs of the rural poor and the semi-literates, for whom these are mainly meant. So if these can change their habits and devote a page for them it can be of great help. Moreover, it can also make them interested in newspaper reading thereby increasing the circulations of the newspapers. This page should carry articles on our cultural heritage, mythology, agriculture, public health, science, life histories etc. If possible the page should be printed with bold letters, making it easy for the semi-literates to read.

Most of the small local newspapers thrive on the government advertisements. So the government should make these papers cater directly to the needs of rual people. Every state government should also start a small newspaper for the semi-literates. It can be equally good for the school students. A blueprint of such a newspaper as visualised by me is as follows : —

(1) The size of the paper should be half the size of a normal daily and should not consist of more than 4 pages, so that, it will be small enough for a semi-literate or a school student to finish it every day.

(2) The paper should be printed in bold letters, which will make it easier to read.

(3) Out of the four pages two should be devoted to small articles on history, religion, agriculture, public health, science, economics, life histories and other educative subjects and the rest for the usual news and views.

(4) The cost should be 10 paise, so the students and the poor rural semi-literate can buy it. Such a newspaper, will enhance their outlook keep them well informed and improve their knowledge on better healthy living. Since, the governments are spending huge sums of money on adult education and on educating poor and rural people, starting a newspaper of this kind cannot be considered as an economic burden. Moreover, it can also serve as a medium for popularising family-welfare, agriculture, public health etc. to further justify the spending.

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Kill not for Beauty

SOME 300 minks are slaughtered to make one coat for my lady. Two baby crocodiles die to make a pair of shoes for her. She must have at least half a dozen such shoes to match her clothes of different hues. A purse of pure snake skin dangles from her hand. Six snakes die, donating their skins to make her six purses. Further, her home is decorated with stuffed fauna and many trophies.

It is high time that such slaughter of animals is stopped. Let there be beauty without cruelty.

Wild elephants at the Periyar Sanctuary (Kerala)

The mascot of the World Wild Life Fund

A female cheer pheasant, a rare bird included in th endangered species

Tribals of Thane Turn a New Leaf

ONCE shy and timid Adivasi Gonds and Warlis of the *Sahyadri* tribal belt in Maharashtra have started joining the main stream of life. The Dhami dam in Jawhar Taluka of Thane District designed to irrigate 14,700 hectares of tribal land, will submerge 1,600 hectares of tribal habitat comprising six villages. So the tribals were given Rs. 3,000 per household as compensation. Also most of the workers employed in the project are triabls. This sudden contact with outside world opened up new areas of economic activity and vigorous social intercourse for them.

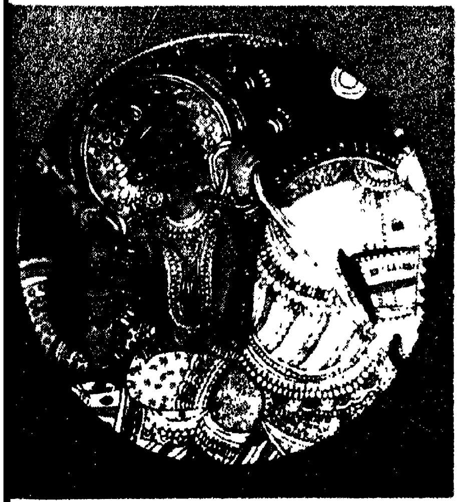
An amount of Rs. 240 crores has been set apart by the State for tribal uplift in the Sixth Five Year Plan During the last four years, the State Government has spent about Rs. 25 crores on various tribal development schemes in Thane District alone.

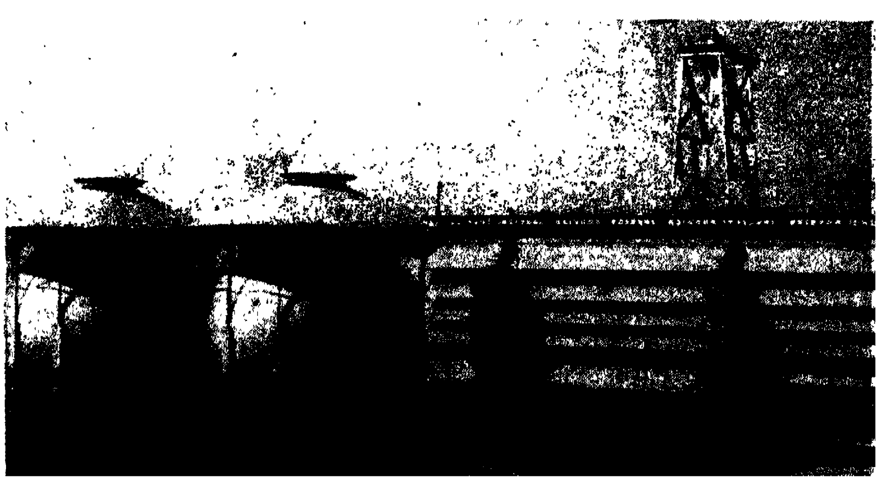
In a novel scheme, the project officers of the Tribal Commissionerate buy grass on cash payment from the tribals. They also pay advances to tribals against pre-monsoon purchases and the profits thus generated are ploughed back into new schemes for tribal welfare.

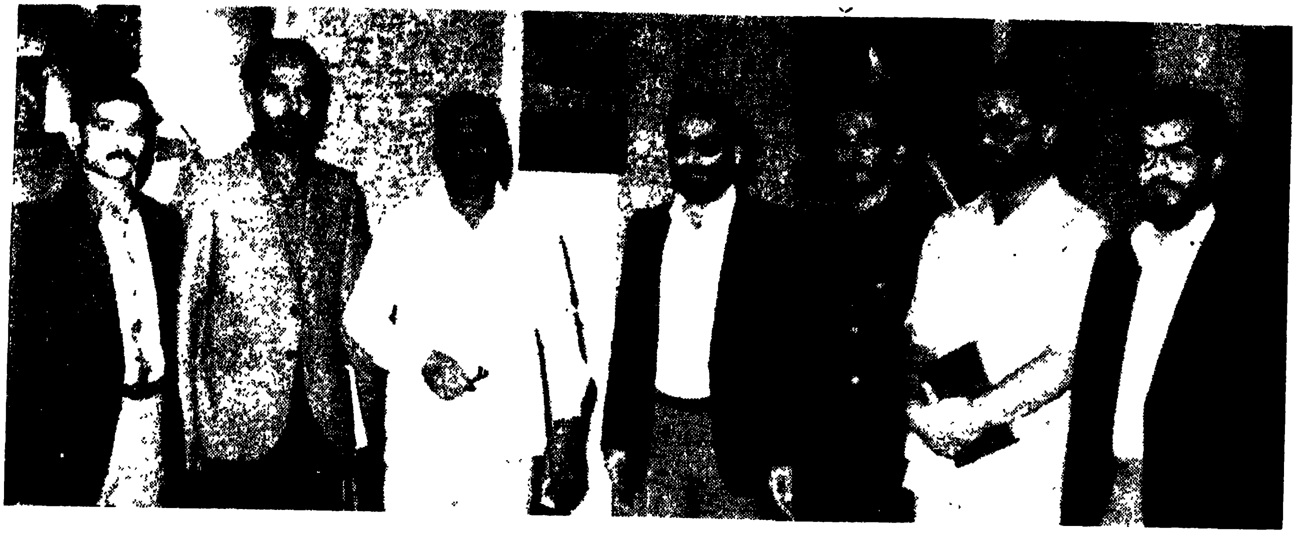
The Small Farmers Development Agency operates 13 pilot projects for tribal welfare in Thane district. Some 60,000 small and marginal farmers have received subsidies varying from 33.3 per cent to 50 per cent for agricultural activities Tribals are entitled to a subsidy upto Rs 5,000. The SFDA has supplied bullock carts, milch animals, poultry birds, pumpsets, fertiliser subsidy, electricity, irrigation facility etc. to the tune of Rs. 90 lakhs to 12,000 small farmers. In addition to this 600 beneficiaries have got a total subsidy of Rs 73 lakhs through the Integrated Rural Development Programme While implementing the Minimum Needs Programme, another sum of Rs 89 lakhs has been also disbursed.

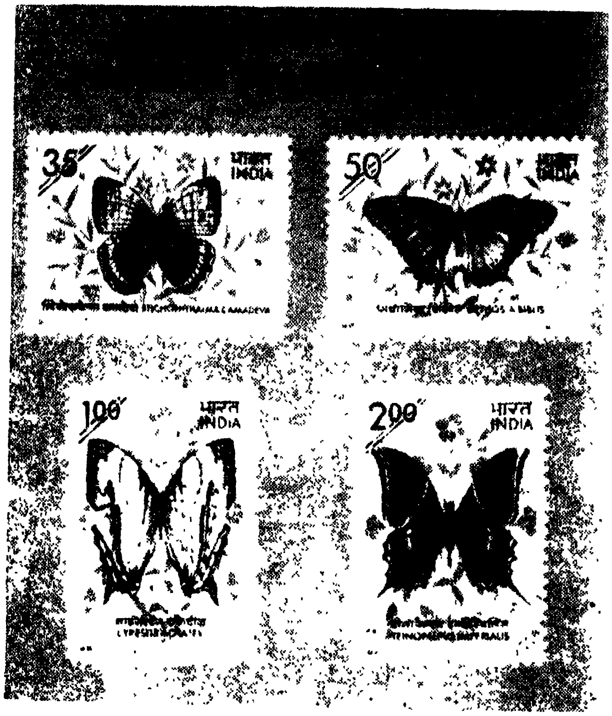
A tribal woman worker with her children.

yojana









(Above) An Iranian delegation led by H.E. Mohd Shahab Gonabadi, Minister of Housing and Rural Development (4th from right) called on Shri S.B. Chavan (3rd from left) Minister of Planning, in New Delhi recently.

(Left) Fascimile of set of four multicoloured stamps butterflies issued by the P & T Deptt. recently.

(Below) Shri S.B. Chavan, Minister of Planning inaugurating an All-India Seminar on "Women and the Law" in New Delhi recently.

YOJANA

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Yojana seeks to carry the message of the Plan but is not restricted to expressing the official point of view.

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Editorial

Towards Global Negotiations

The gap between the rich and poor nations of the world, labelled as the North and the South, is getting wider with each passing day. While the developing countries are facing formidable obstacles in their path of economic progress, the least developed countries are finding it difficult even to survive. Under such conditions the mini summit conference of 22 heads of state and government at Cancun came not a day too soon. This conference had been suggested by the Brandt Commission as the first step towards global negotiations for a New International Economic Order. The conference was unfortunately boycotted by the Soviet bloc.

The poor countries have always been the losers in their economic relations with the rich ones because of the latter playing the game with the loaded dice of their wealth and technological superiority. The poor nations have been getting low price for their commodities the market for which is kept unstable; the export of their manufactures is restricted by the protectionist policy of the rich countries which hypocritically harp on "free trade" and their foreign earnings are reduced by manipulations in exchange rates. The economic difficulty of the 'Southern' countries has become very acute of late because of the exhorbitant rates they have to pay for their imported oil, the cost of which wipes out most of their export earnings.

All these problems were informally discussed at the Cancun conference. There were no wordy duels or confrontations which usually mark North-South meetings. The U.S. which is the leading power of the Western bloc reiterated its views, such as self-effort by the poor, importance of market economy, private enterprise and avoidance of new economic institutions. India submitted proposals for removing trade discriminations faced by the poor countries and pleaded for a global compact in economic relations.

Even though the conference did not succeed to the extent desired by the South, it did not end as a failure either as predicted by the pessimists. The participants including the U.S., agreed to hold global negotiations. There was also a concensus that world hunger should be abolished within the next two decades and that the less developed countries should be helped in improving their agriculture. Though the rich countries did not agree to the creation of an 'energy abbiliate' of the World Bank as suggested by the poor ones, they were willing to give more financial aid in order to meet the oil problem.

The poor South should now make all-out efforts for holding the global negotiations. These countries should also tighten their belts, rely more on self and collective efforts and seek more cooperation with the second level industrialised countries. The developing OPEC countries should show, in their own interest, more consideration for the other developing nations with regard to oil prices and investment of petro-dollars. Western countries should realise that it is better to divert a fraction of their expenditure on armaments to help the poor nations than to risk such dangers to world peace and their own prosperity as the Korean and Vietnamese wars of the past. The Eastern bloc should also come forward to participate in multilateral aid programmes since the only way to weaken capitalism, when nuclear war is ruled out, is to build up the poor nations. ☐

Thirty Years of Economic Development

Impact on Level of Living

I R.K. Sarma*

OVER the last three decades, 1951 to 1981, considerable amount of money, running in several thousand crores of rupees, was spent on the economic development of the country with a view to increasing the production in the agricultural and industrial sectors, improving the infrastructural facilities such as power generation and transportation, and for providing the various services required for efficient functioning of the economy. Efforts were also made to improve the human skills and other resources available for attaining a higher level of economic development in the near future. To what extent did these attempts result in raising the general standard of living and well-being of the people in the country? The purpose of this paper is to throw some light on this aspect. Since the well-being of the people cannot be measured directly in a simple manner this question has to be answered on the basis of certain data which can throw light on this issue in an indirect way. This is briefly atempted in the following.

Health and Nutrition

First attention is given to studying the key changes which occurred in the health and nutrition of the population. This is so because such changes in a way, are more valuable than the increase which took place in the production of goods and services. According to the Sixth Plan, the mortality rate in the country declined from 27.4 for 1940s to 14.2 for the latter part of 1970s. The infant mortality came down from 146 in 1950s to 129 for the mid-1970s. The life expectancy at birth which was only about 32 years according to the 1951 population census has shot up by over 60 per cent to a level of 52 years for the latter half of 1970s.

The per capita availability of foodgrains increased from around 395 grams a day for 1951 to nearly 480 grams for 1978-79 (Ministry of Finance, Economic Survey 1979-80) ; in other words, over this period the number of calories available, on a per capita per day basis, went up by over 300 and this is from the relatively more important sources of plant foods alone i.e. not taking into account the availability of calories from increased production of milk, meat, fish and eggs. There was also an increase of over 40 per cent in the per capita availability of edible oils including vanaspati over the period under study (Economic Survey, 1979-80). The increase in the availability of these commodities is, of course, not monotonic; however the trend is unmistakably one of rising. It would probably have been possible to achieve even more spectacular results over the past three decades than what have been indicated above; but even these constitute no small achievement.

Education

Before passing on to considering the more important economic changes it may also be of some interest to note the changes which took place in the sphere of education, particularly technical education in the country. In the early fifties there were relatively speaking, only a few universities and institutions imparting technical education in agriculture, engineering and medicine. The growth of such institutions over the period under study is highly significant. At present there exist in the country 119 universities affiliating 1650 colleges, five institutes of technology, 350 polytechnics, 150 engineering colleges and 100 medical colleges; and nearly 1-1/2 lakh qualified scientific and technical manpower is produced every year now who can be employed for manning the various developmental projects. The point to be stressed in this connection is that despite this phenomenal increase in the number of institutions in the country for general and technical education there is still felt some shortage in the availability of seats in the colleges for higher learning. A situation of this type is unlikely unless the people are economically better off now compared to, say, the early fifties or pre-plan era even though this could, to a small extent, be explained by the special amenities (such as reservations, scholarships, studdenships, free boarding and lodging) provided to certain groups in the population.

Levels of Living

Let the attention be now turned to a study of the more important economic changes which occurred over the past three decades and which have, perhaps, a more direct bearing on the changes which occurred in the levels of living of the population. The discussion in this connection is limited to examining the changes which occurred in the distribution of income and consumer expenditure, and propensity to save as also the changes in the proportion of saver and dissaver groups in the population; the changes in the income concentration of saving have also been briefly indicated. The inferences concerning the changes which occurred in the income and expenditure distributions are based on Lorenz Ratio, a summary measure usually adopted for measuring the degree of concentration of income or expenditure. The value of this measure ranges from 0 to 1; the nearer is the value of this measure to zero the more equitable is the distribution of income or expenditure in the population. Keeping this in mind the changes which occurred in the distribution of urban and rural household incomes in India over the period 1960-1975 can be studied with the help of the data shown in the following table :

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*Director, National Council of Applied Economic Research New Delhi.

Lorenz Ratio for Income Disinction among the Households (NCAER Income Surveys)

	1962	1967-68	1975-76
Rural	0.41	0.46	0.39
	1960	1967-68	1975-76
Urban	0.49	0.45	0.42

Thus according to the three household income surveys conducted by the National Council of Applied Economic Research (NCAER), for each of which the concept of income adopted remained about the same, there is reasonably good evidence of decreasing inequality in the distribution of urban household income; the Lorenz Ratio which was calculated to be 0.49 for 1960 for the urban household sector declined to a level of 0.42 for 1975-76. There is also some suggestion of decreasing inequality in the distribution of income for the rural household sector though the decreasing trend is not consistent. It would nevertheless appear that there is an improvement in the distribution of income both for the urban and rural household sectors in the mid 1970s compared to early 60s. It may be noted in this connection that according to the Sixth Five Year Plan national income of India has grown at a rate of 3.5 per cent per annum over the period 1950-51 to 1978-79. The population of India over the same period increased at a rate of 2.1 or 2.2 per cent. Thus one can conclude from the above that not only the aggregate and per capita income in the country has gone up, though only to a small extent, but even the distribution of income among the different income groups appears to be somewhat more equitable in the latter half of 1970s than in the early sixties.

Consumer Expenditure

The changes which occurred in the pattern of consumer expenditure also provide some guidelines to examine whether people are better off or worse off between any two periods. For a study of this aspect the data collected by the National Sample Survey (NSS) constitute the only major source. According to these data the growth in consumer expenditure was 1.1 per cent per annum over the period 1950-51 to 1978-79. The NSS data further reveal that the people both in the urban and rural areas, were better off in the mid 70s than in mid 50s. This can be seen from the values for the Lorenz Ratio for the distribution of consumer expenditure for different periods shown in the following Table.

Lorenz Ratio for Household Consumer Expenditure (NSS Expenditure Surveys)

	1957-58	1967-68	1977-78
Rural	0.33	0.28	0.30
Urban	0.36	0.33	0.33

Thus on the basis of the distribution of household income as well as the distribution of consumer expenditure among the population one can conclude that the Indian population was economicaly better off in the mid 70s than in the mid 50s or early 60s.

Capacity to Save

Another characteristic of the population which can throw some light on the general well-being of the population is its capacity to save. The recent Reserve Bank Study indicates that the propensity to save of the Indian household sector has significantly increased over the period under study; it was 4.3 per cent for 1950-51, 6.1 per cent for 1960-61, 10.2 per cent for 1970-71 and 17.6 per cent for 1978-79. [Majumdar, N. A. Venkatachalam, T. R. and Raghavachari, M. V. "The High Saving Phase of the Indian Economy : 1976-79—An exploratory Interpretation." Reprint from the RBI Occasional papers, vol. 1, June 1980.] Lest one may think that this achievement of high saving income ratio of the household sector is due to the relatively more concentration of saving among the higher income groups an effort is also made here to trace the changes which occurred in the proportion of savers and dissavers in the population over the period 1960 to 1975-76. The details are shown in the following Table

Positive Savers and Dis-savers (per cent of huseholds)

	1960		1962		1975-76	
Rural	.	..	52P	20D	69P	11D
Urban	39P	46D	.	..	75	

Thus, compared to 1960s positive savers (i.e. for whom current income is more than current consumption), both in the urban and rural household sectors significantly increased for the mid 1970s; this increase is relatively more striking for the urban areas. Further there has been a notable reduction in the proportion of dissavers (i.e. those for whom consumer expenditure is more than current income) in 1975-76 compared to early 60s; the reduction is noteworthy, again, for the urban areas. Thus, he percentage of positive savers increased and negative savers decreased in the country in 1975-76 compared to early 60s. Further there is clear evidence of dcreasing income concentration of saving both for the urban and rural household sectors. According to the NCAER Income Saving Surveys referring to 1967-68 or 1975-76, in which an effort was made not only to collect the data on household income but also on household saving, the top 5 per cent of urban households in 1967-68, when arranged on ascending order of household income, accounted for about 74 per cent of the saving of this sector; on the other hand, the top 5 per cent of the urban households in 1975-76 could effect 42 per cent of the volume of saving generated in this sector in that year. In the rural household sector the top 5 per cent of the households in 1967-68 were responsible for about 88 per cent of the total saving of this sector while tne share in the aggregate saving of the same proportion of the households in 1975-76 in this sector was around 45 per cent. Over the same period 1967-68 to 1975-76, it is interesting to note, the average propensity to save of the household sector, according to the RBI Study refered to earlier, went up by 37 per cent, from 8.9 per cent of income to 12.2 per cent This kind of an economic situation would be unlikely unless the distribution of income is more favourable for the middle of 70s than for the middle of 60s. (The figures for the share of the top 5 per cent of households, whether for urban or rural, quoted here for 1967-68 are in terms of net saving, while the same figures for 1975-76 are in terms of gross saving. Thus there is a conceptual difference in the concept of saving used for these two surveys. However, it is unlikely to cause significant changes in the conclusions drawn on the basis of the fractile shares in household saving).

In view of what has been said in the above paragraphs regarding the rate of growth in the consumption and saving propensity of the Indian household sector, it appears that Indian households, in the wake of income inceases, are more saving conscious than consumption (or increasing the standard of life) conscious. This if true is a welcome phenomenon for successfully mobilising the funds needed for implementing the various developmental plans and also for keeping the prices under control.

Poverty

As regards the extent of poverty, there are no reliable data for the period under study. This does not mean there is no poverty in the country. The situation is far from it though one does not know how widely poverty is spread over the country. There is also some question whether poverty should be measured merely in terms of calories available per capita per day or some allowance should also be made for expenditure on bare necessities such as for clothing and housing. One thing, however, is clear, namely, the reference to this aspect made in the Sixth Plan document is based on the availability of calories alone. According to this source there is some reduction in the poverty (about 3 per cent) over the period 1972-73 to 1977-78. However, more than 48 per cent of the people in the country (approximately one out of two in the rural areas and two out of five in urban areas) are still below the poverty line. The definition of poverty is based on the intake of calories. The poverty line is defined as the mid point of the monthly per capita expenditure class having a daily calorie intake of 2400 in the rural areas and 2100 in the urban areas. The question which arises in this context is how much reliance one can place on the Sixth Plan estimate of thne poor. This is particularly so because it is claimed in the Plan document that the life expectancy of the Indian population has increased by over 60 per cent, from 32 years in 1951 to 52 years in the latter half of 1970s. Further as noted earlier, there have been a few significant economic changes for the better, though some of these are only moderate, over the period 1951-81. Given this, it would appear that the Sixth Plan estimate of the poor based on the caloric requirement seems to be on the high side. According to Professor P. V. Sukhatme, whose expertise and interest in the studies of human nutrition is well known, there is no absolute energy (calories) requirements for any day or period and the individual requirement is controlled by a regulatory system, the nature of which is not known at present. It would be of great interest to quote him in this context. Professor Sukhatme says :

> "......when intra-individual variation in energy balance is the fundamental source of variation and the successive values can be generated by an auto-regressive process such as Marakoff, it also means that there is no absolute energy requirement for any day or period. It simply means the individual is in homeostasis and that his requirement is is controlled by a regulated system, the nature of which we do not presently understand......"

In view of the above observation, there is some doubt regarding the estimate of the number of poor in the country arrived at on the basis of the average calory requirement per capita per day. Working with the NSS data relating to 1971-72 and employing his own, and perhaps relatively more convincing method Professor Sukhatme comes to the conclusion, in the paper referred to above, that the malnutrition linked poverty in the country would be of the order of 20 per cent. This is much less than the figure of 48 per cent suggested in the Sixth Plan. Thus according to the relatively more scientific methodology adopted by Professor Sukhatme, the poor in the country may now constitute, say, 130-140 millions. Even this number is high enough to cause concern and take steps to improve the economic conditions of the poor. Most of the poor people, according to Professor Sukhatme, belong to the class of landless labourers and those living in tribal areas and in slums; this is also what one should expect on apriori grounds. Whether or not it is possible to eliminate this mal-nutrition linked poverty from the country in the near future, the Planning Commission is seized of the problem and has been taking steps towards achieving this objective. In the Sixth Plan also, as in the earlier plans, provision is made under different heads (such as Integrated Rural Development Programme, labour and labour welfare, hill area development, development of backward classes and social welfare) for eliminating or reducing the level of poverty. One can only hope that the proportion of the poor will come down substantially by the end of the Sixth Plan. ☐

Bhubaneswar RRL Makes Great Strides

The achievements made by the Regional Research Laboratory, Bhubaneswar in some of the national projects during 1980-81 are likely to make a great impact on advancement of technology and development of industries.

In the collaborative programme with the National Institute of Oceanography, Goa on mineralogical and beneficiation studies of bulk samples from off-shore region of Indian coasts, detailed mineralogical and beneficiation studies on a large number of samples from West coast of India have been carried out indicating presence of appreciable amount of titanomagnetic and ilmenite minerals containing vanadium pentoxide around 0.5 wt. per cent.

The Laboratory has completed the project on beneficiation of low grade siliceous chromite from Boula region, Orissa sponsored by M/S. Ferro Alloys Corporation Ltd. (FACOR), Shreeramnagar (A.P.) and a report has been submitted to the sponsor. Based on this technology, the sponsor is planning to set up shortly a commercial plant in Orissa for the beneficiation of such ore. Investigations were carried out on another similar project on the beneficiation of low grade ferruginous chromite with low silica from Sukerangi area, Orissa sponsored by M|s. Orissa Mining Corporation, Bhubaneswar. The sponsor may set up a commercial plant based on the results obtained in the Laboratory.

A novel process of extraction of vanadium from vanadium bearing titaniferous magnetites found in Mayurbhanj district of Orissa has been developed in the Laboratory. During the year, pilot plant experiments in collaboration with M|s. Engineers India Ltd., New Delhi were carried out to standardise roasting, leaching and precipaitation conditions to opitmise the process and design engineering parameters for extraction and recovery of vanadium.

The Laboratory has carried out pilot plant scale studies on production of manganese ore sinters and its effect on performance of electrical furnaces for production of ferromanganese in collaboration with the Mineral Development Board, Government of India. New Delhi. Based on the parameters established in the Laboratory, the design calculations for a 50 ton per day manganese ore sintering unit has been completed and specifications of various equipment have been supplied to the sponsor.

A project on production of solar grade silicon by hot metal solvent extraction and directional solidification for developing a suitable economic process to produce it for photovoltaic applications has been undertaken by the laboratory. This project has been sponsored by the Department of Science and Technology (DST), Government of India. Experimental setups like solvent refining furance, slag refining furnace and directional solidification unit have been specially designed, fabricated and commissioned for carrying out experiments in the Laboratory.

Considering the present energy crisis, material transport through pipeline which is a cheaper mode of transport in comparison to rail or road, the Laboratory is engaged in setting up a pilot plant facility of different dia test loops of 200 mts. length and the plant will be commissioned by the middle of 1981 in collaboration with M|s. Engineers India Ltd., New Delhi.

To Laboratory has undertaken to prepare carrier-grade alumina by the technique of precipitation from homogeneous solution (PFHS) and impregnation of platinum on to it for the Indian Petrochemicals Corporation Ltd. (IPCL) Baroda.

As a part of ICAR-CSIR Co-ordinated project, a process has been developed for isolation of hecogenin from waste sisal juice available in this region in about 0.1 per cent yield containing tigogenin in acceptable limit for further conversion to other life-saving drugs. *Agaves* cultivated mainly for fibre and juice, normally wasted, offer an attractive source for the production of hecogenin. In India about 1,500 kg of hecogenin can be recovered from waste sisal juice but the demand of the material is more than 2,500 kg per annum. Therefore, there is a scope for the development of this process utilising the agro-waste for drug industries in India.

Plantation of Cinnamon which is a new introduction to this region has been taken with seedlings raised by the Laboratory in different districts of Orissa having different agro climatic conditions. On the need expressed by M|s Similipahar Forest Development Corporation (SFDC), Orissa, the Laboratory has undertaken a project in collaboration with this corporation to survey the plant resources of Similipahar forest for their proper utilization.

The Laboratory has created the following major infrastructural facilities for carrying out large scale R&D work on different projects :

(1) An indigenous X-ray diffraction unit and an emission spectrograph;

(2) Akufe solvent extraction unit;

(3) A number of special high temperature furnaces; and

(4) High presure mineral leaching equipment. ☐

Final assembly of Kiran Aircraft at the HAL, Bangalore.

Military Aviation in India

Air Chief Marshal Arjun Singh*

THE Air Force is now entering the Golden Jubilee Year and, therefore, it is appropriate to assess its past achievements and its future hopes, aspirations and duties.

Before Independence

The Indian Air Force was formed in 1932 and in the same year the Indian Military Academy was opened at Dehra Dun for training of army officers. However, in the case of the Air Force, all ground training was started in India, but the officers' training was carried out in England up to 1940. In this period of eight years, only one squadron with 16 aircraft—a nucleous of our future Air Force—was established. In fact,the first squadron was only completed in 1940 when I joined it on completion of my training in England. The Air Force in India was quite out-dated as it was given only those aircraft not required by the Royal Air Force in England. In 1940, the Indian Air Force still had aircraft of World War I vintage.

When World War II started in Europe, tension increased in Asia also. The British Government saw in it a great danger to its empire and decided to meet the Japanese challenge by vastly expanding the Army, Navy and the Air Force in India. Many additional flying and ground training schools were opened and there was rapid expansion in all directions. At the end of 1943, the Indian Air Force had ten operational squadrons equipped with modern aircraft and many supporting units to ensure that these operational squadrons were maintained and supplied properly.

It was indeed a proud year in 1944 when all the ten squadrons of the Indian Air Force were participating in operations, largely against the Japanese, fighting on the eastern borders of India. A situation where all squadrons are engaged in operations at the same time is indeed rare with most Air Forces. The operational expercience gained by pilots and ground personnel has been a great advantage to the Indian Air Force all these years. In fact, we still have, in service, some officers and airmen who saw active service in World War II. During this glorious chapter in the history of the Indian Air Force, a large number of our officers and airmen distinguished themselves and were awarded decorations for bravery and devotion to duty. Here, I would like to mention the names of two officers who particularly distinguished themselves during this

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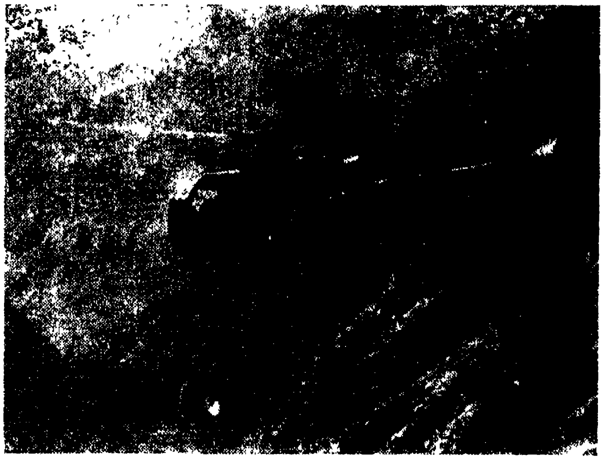
*Former Chief of Air Staff.



An Alouette helicopter of the IAF on a rescue mission deep in the Himalayas.

period. One was Wing Commander Majumdar who commanded No. 1 Indian Air Force Squadron in Burma in 1942; this unit carried out some spectacular operations against the enemy. He was awarded Distinguished Flying Cross. The same officer volunteered to fight in Europe to gain more experience of fighting in that theatre of war and was awarded another Distinguished Flying Cross. I would also like to mention Air Commodore Mehar Singh who commanded a squadron on the Arakan front and was awarded the Distinguished Service Order. Later he distinguished himself during our first war with Pakistan in 1947 and 1948, and was awarded Maha Vira Chakra.

After Independence

The country was partitioned in 1947 and so was the Air Force. Seven squadrons remained in India and three were given to Pakistan. The Indian Air Force also became an independent Service during that year. Development of the Air Force since that time has been well balanced and quite rapid. The Air Force, in my opinion, wisely decided to concentrate on establishing training units in large numbers. The emphasis on training has paid good dividends. Presently, the Air Force has around 45 squadrons composed of transport, fighter, bomber and reconnoisance aircraft. Such an Air Force needs literally scores of supporting and ancillary units for its maintenance.

The biggest task before any Air Force is to keep up-to-date so that it is not at a disadvantage during operations. Assuming equal training and skills, it is absolutely important to have matching equipment, otherwise the morale of the personnel participating in operations may be affected. And morale, as we know, is one of the most impartant factors in war. Morale depends on a number of factors like training, equipment, welfare and quality of leadership at all levels.

Our Neighbours

India has been forced to divert its scarce resources—so urgently required for the uplift of its people—to maintain defence forces of the size and quality to ensure security of our borders. Many of our neighbours who are not always very friendly, are busy building up their defence forces tnd particularly their Air Forces. We have no control over such developments and, therefore, must keep pace with them. In any defence planning, assessment of likely dangers is indeed important. Our neighbours are getting very powerful by acquiring most modern equipment with generous help of money and materials. Such expansion of the defence force, and particularly Air Force, can only be for agressive purposes. I cannot believe that our neighbours are preparing to fight a super power. So who will they fight ? The answer is quite obvious.

Pakistan, militarily speaking, is in a stronger position after the breakaway of Bangla Desh, to fight a war on its eastern borders. Now they have to fight only on one front and they can, therefore, concentrate their forces there, instead of dispersing them in two parts widely separated.

F-16 Aircraft

No talk about the Air Force is complete these days without mentioning the famous F-16 aircraft. This type of aircraft was used recently in a daring attack by Isreal on nuclear facilities in Iraq. It is perhaps the most modern aircraft of this category at present. What is it that makes it such a potential danger ? The first point in its favour is its big radius of action. A long range aircraft gives the commander many options in planning attacks on targets by avoiding the enemy's heavily defended areas. The long range of such aircraft will also bring within their reach many vital points, thereby extending the defences required to meet them. With such aircraft, our neclear power stations, supplying electricity to millions of people, could be easy targets.

Furthermore, the F-16 aircraft has good radar, both to avoid interception and to navigate and find targets. With its big load of bombs, missiles, etc. it is a formidable aircraft in our sub-continent. To meet such a threat, India would have to look into various aspects of its defence arrangements. When talking about defence, we always include offence; offensive action is mostly more rewarding than waiting and defending ourselves when attacked. It is a well known saying in defence circles that 'offence is the best defence'. What is required is a deeper look into the capabilities of our radar, missiles, fighters and bombors and in my opinion, time is now to make preparations to meet the challenges which are developing around us.

Role of Pilots

With such immense advances in aviation, people are beginning to imagine that the role of the human being in military aviation is becoming unimportant. That is not so. Maintenance of modern and automatic equipment needs more careful attention. I feel certain that a pilot of aircraft will be there in the foreseeable future. In certain situations when there is close fighting between the armies, it is only the pilot, in an aircraft, who can ensure the required accuracy. And it is only the pilot who can react to changing situations in an operational flight. This would highlight the importance of getting good human material to look after military aviation. The Indian Air Force is composed of people of all religions and its personnel come from every corner of India. They live together in great harmony and set an example for national integration.

However, now-a-days, young men looking for a career assess the future prospects very carefully. They also try to know the service conditions before they

(continued on page 28)

What Ails the Central Heavy Engineering Units?

Dr. B. Ramakrishna Rao*

THE latest survey on the working of Central Government Undertakings presented to the Parliament reveals that the heavy engineering units have sustained an overall net loss of Rs. 38.92 crores in 1978-79 and Rs. 34.70 crores in 1979-80 against an investment of Rs. 927.33 crores and Rs. 976.16 crores respectively. In view of substantial investment required as well as its crucial importance to the nation, the heavy engineering industry in our country is mainly confined to the public sector. Of the 11 manufacturing undertakings in public sector heavy engineering group at the end of 1979-80, only four were in a happy position as the rest are accumulating losses every year which have surpassed even their paid up capital. As a matter of fact, the incidence of poor financial results is disturbing as it comes in a year when similar undertakings in private sector are earning handsome profits.

Declining Capacity Utilization

The survey further points out that some undertakings were incurring losses continuously while the rest showed considerable improvement in profitability. One reason responsible for poor profitability is declining capacity utilisation in most units of the group. It is heartening to note that the number of running units where the incidence of capacity utilisation is less than 75 per cent was reported to be 10 in 1979-80 as against only seven in 1977-78. While six out of 16 manufacturing units had reported less than 50 per cent utilisation during 1977-78, eight units out of 17 units reported such poor performance in 1978-79 as well as in 1979-80. Interestingly, undertakings which are working at low level of their capacity have been incurring losses while those operating at a higher level of their capacity have been making profits. Thus Bharat Heavy Electricals, Tungabhadra Steel Products and Triveni Structurals which are working at their higher level of capacity are earning profits while concerns like Bharat Heavy Plate and Vessels, Heavy Engineering Corporation, Jessop & Co. and Mining & Allied Machinery Corporation are incurring losses on account of their poor capacity utilisation. Special mention may be made of the three manufacturing plants of Heavy Engineering Corporation, the capacity utilisation of which was less than even 30 per cent during 1977-78. The growing problems of liquidity, chronic power shortages and transport bottlenecks, on the one hand, and deteriorating industrial relations, on the other, have resulted in very poor production in these units during the last three years.

Withdrawal of Price Preference

While poor capacity utilisation may be a direct consequence of the above factors, the withdrawal of the 10 per cent price preference during 1977-78 may also have affected the public sector heavy engineering units adversely as it did other units. Consequently, these units have been forced to face the severe competition both nationally and internationally.

Higher Interest Burden

Another factor responsible for the disquieting performance of these units is higher interest burden, which has been rising by leaps and bounds every year. For instance, the Central Government increased the interest rate payable on its loans to these units from 2.5 per cent to 10.5 per cent in 1976, the rates were escalated further to 12.5 per cent for non-plan loans and yet again to 14 per cent in 1978. As a result, the total interest burden of these units has gone up from Rs. 59.36 crores in 1976-77 to Rs. 87.22 crores in 1979-80. At a time, when the financial position of these units is in troubled waters, the escalation of the interest rates by the government would add fuel to the existing fire.

Accumulation of Inventories

Another and most important factor contributing to the poor performance of these units is excessive accumulation of inventories, for instance, the total inventory of all the heavy engineering units valued to 12.56 months' cost of production in 1977-78, 11.50 months' cost of production in 1978-79, and 10.6 months' cost of production in 1979-80. The Bureau of Public Enterprises have prescribed a uniform and standard inventory norm of six months' cost of production for all public enterprises. The ratio was much higher in the case of Heavy Engineering Corporation, where the inventory was 19.56 months' cost of production in 1977-78 and 16.00 months' cost of production in both 1978-79 and 1979-80. This proves that though the value of total inventory in relation to the total output of these units had registered a downward trend, it still remained much higher than the norm prescribed by the Bureau of Public Enterprises. Accumulation of inventories on such a large scale is not desirable as it affects their profitability position by creating unnecessary carrying costs.

Pragmatic Approach

While the public sector heavy engineering industry has undoubtedly grown and emerged as a catalytic force in the industrial skyline of the nation, it is time for these units to prove that they are not mere white-elephants. The need of the hour is to make them run on commercial lines rather than on philosophical principles. Considering the crucial role which the heavy engineering sector has to play in the industrial development of the nation, there is every need to identify the factors inhibiting the growth of these units. Past experience shows that the social obligations which the public undertakings should fulfill have inhibited the very development of these units. The cliche that public enterprises are meant for public welfare should be dispensed with and they should aim at contributing a reasonable rate of return to the national exchequer by striking a balance between social needs and the interests of those employed in them. ☐

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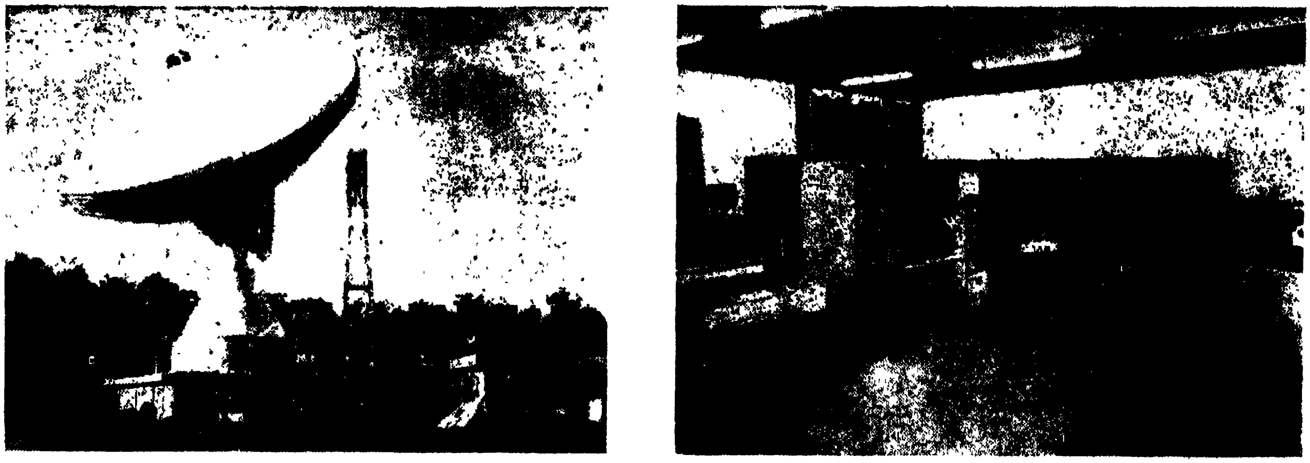

(Left) 30 mm diameter steerable antenna for Overseas Communications Sevice at Dehradun and (Right) TDC—316 computer system for Fast Breeder Reactor at Kalpakkam, manufactured by the SCIL Hyderabad,

Cover Story

25 Years of Andhra Pradesh

R. R. Rao*

ANDHRA Pradesh, the first State created on the basis of language, has been celebrating its Silver Jubilee year from November 1, 1980. The State has achieved appreciable advancement in various fields. The land of Telugu speaking people has a population of about 5.34 crores living in 23 districts over an area of 2.77 lakh hectares. Major rivers like the Godavari, Krishna, Penna and Tungabhadra, along with many minor ones, cut across the State before embracing the Bay of Bengal.

Agriculture and Irrigation

Andhra Pradesh has rich soils suitable to give bumper harvest of not only foodgrains like rice and pulses but also commercial crops like tobacco, cotton, mesta, and chillies. After the formation of the State high yielding varieties of seeds have been cultivated using the modern methods of farming, with the result AP has become the granary of South India. The state produced about 34.22 lakh tons of rice in 29.27 lakh hectares, during 1956-57. The rice production in 1980-81 went up to 69.34 lakh tonnes and the area, to 36.07 lakh hectares. The yield of maize has registered a six fold increase. Twenty five years ago the crop was sown in 1.07 lakh hectares with an output of 1.05 lakh tonnes. In 1980-81 the State harvested, in 3.08 lakh hectares, about 6.63 lakh tonnes of maize.

Apart from food grain production, virginia tobacco has been the monopoly of Andhra Pradesh. It is grown in 1.68 lakh hectares area which yields 1.56 lakh tonnes annually. The tobacco is exported to 35 countries and earns over Rs. 110 crores of foreign exchange per year. Cotton is another important commercial crop of the State. In 1956-57 cotton was being grown in 4.03 lakh hectares which area has gone up to 4.91 lakh hectares in 1980-81. Its production has increased from 1.37 lakh bales to 5.20 lakh bales during the same period.

Now irrigation facilities are available to about 42 lakh hectares whereas 25 years ago only 20.36 lakh hectares were being irrigated. After the formation of the State major irrigation projects like Nagarjuna Sagar, Sri Ram Sagar and Tungabhadra have been taken up and completed in a phased manner. Added to these are many medium and minor irrigation schemes.

Industry

When the State was formed, the industrial sector was limited to manufacturing items necessary for day-to-day use in villages and to a few servicing and repairing workshops in urban areas. In a phased manner the State has been developed to occupy a significant place in the industrial map of India. Now in the State are about 25,000 small scale industries and 330 heavy and medium industries, involving

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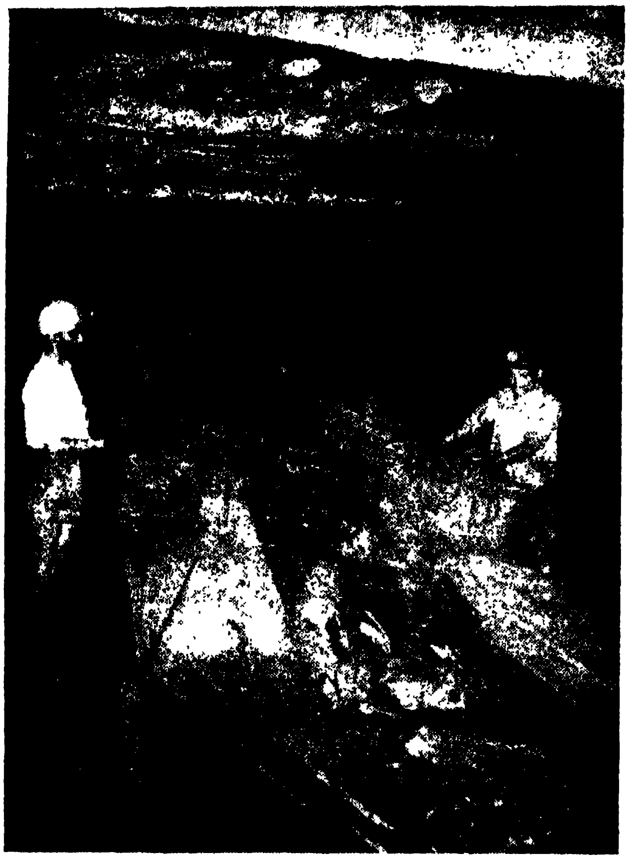
*Our Correspondent. This report is based on an exhibition held recently in New Delhi by the A.P. Govt.



Coal being carried by conveyor belts in Kothagudem coal mines

Rs. 1708 crores of investment and giving employment to about 6 lakh people. Also about 190 heavy and medium industrial units are being built with an outlay of Rs. 5,000 crores. To name a few major industries, the Electronic Corporation of India at Hyderabad is famous for its TV sets, computers and other electronic devices. The Hindustan Machine Tools at Hyderabad has been well known for its machine tools. Allwyn Metal Works builds truck bodies and manufactures a number of items including refrigerators and scooters. Shipbuilding is undertaken at the Hindustan Shipyard, Visakhapatnam. Hindustan Petroleum Corporation with a capacity of 1.5 lakh tonnes is under the process of expansion to 4.5 lakh tonnes at Visakhapatnam. In 1967 Coromandal Fertilizers and in 1968 Bharat Heavy Plates and Vessels were established. In 1973 the Hindustan Zinc Smelter came into being at Visakhapatnam. In 1977 the Dredging Corporation of India was established. An integrated steel plant of 3.4 million tonnes of liquid steel capacity is taking shape near Visakhapatnam.

Electricity

In power generation the State has made big strides. The installed capacity has increased 23-fold during the last 25 years. When the State was formed the installed capacity was a meagre 100 MW, produced by a few thermal and diesel stations like Nizamsagar Hydel Scheme and Hussain Sagar Project. Having realised the importance of electricity, AP, in cooperation with Orissa, constructed the first power project on the Machkund river. Now the map of AP sparkles with ten power projects raising the installed capacity to 2300 MW.

Beginning with Machkund and Tungabhadra hydro-electric schemes (114.7 MW and 72 MW—joint schemes with Orissa and Karnataka), the State has completed in stages the Kothagudem Thermal Station to a total capacity of 680 MW, Ramagundam to 100 MW, Nellore to 30 MW on thermal side and upper Sileru 120 MW and Lower Sileru 460 MW on hydro side. The latest additions are at Nagarjuna Sagar where three units with 310 MW total capacity are operating now and two more units of 100 MW each are under erection. The pump/turbine system adopted at Nagarjuna Sagar is the first of its kind in India. The Srisailam Hydro Electric Scheme on the river Krishna will add 110 MW by early 1983.

Whereas 300 M kwh of power was being generated with power lines extending over 9,100 kms. at the time of formation of the State, the present capacity is 8000 M kwh, over 20,000 kms. long power cables. Per capita consumption of electricity, a quarter century ago, was 7 kwh and now it is 104 kwh. Power was supplied to 3,000 industries in 1956 and now 57,900 industrial units get the benefit. Over 630 villages|towns were electrified 25 years ago and now the number has risen to 18,150. Harijanwadas which were in darkness before have been electrified in a phased manner and now about 15,170 of them have electricity.

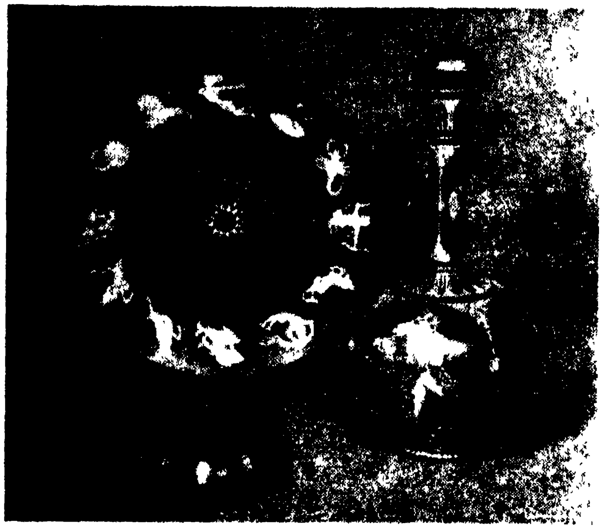
Visakhapatnam Port

Visakhapatnam occupies a unique place among the cities of AP. It is the major sea port of the State and one of the important ports of India. The first shipbuilding centre in India was started at Visakhapatnam in 1941. The first ship to enter the inner harbour of the port was "Jaladurga" and it was on October 7, 1933. Today the harbour has capacity to accommodate 15 ships of 36,000 tonnes each at a time. From here manganese ore, steel, petroleum, fertilisers, coking coal, cement, sugar, tobacco, paper, newsprint, and rice are transported

The outer harbour, inaugurated in 1976 and constructed at Rs. 114 crores is the only one of its kind in our country. Ships of 1,40,000 tonnes enter the harbour which is mainly being utilised to export 60 lakh tonnes a year of iron ore to Japan. Plans are afoot to construct separate berths for crude oil, fertiliser, and container service. In 1979-80 about 1.17 crore tonnes of material was exported and Visakhapatnam stood third among all the ports in India and first among the ports of east coast.

Health

Coming to health services, the State has been dotted with 978 hospitals and dispensaries with 23,854 total beds till 1980. Two and half decades ago only 396 hospitals were there with 13,995 beds. Now Andhras in rural areas get medical aid in 420 Primary Health Centres which were only 136 in 1956 as a result of various health programmes the birth and death rates in AP now stand at 33.4 per cent and 13.4 per cent respectively whereas in 1956 they were 39.7 per cent and 25.2 per cent respectively. Along with the improvement in health, the life expectancy has gone up from about 36 to about 51. In Family Welfare Programmes the State has shown



Fine specimens of Nirmal ware

impressive progress. From inception to March 1981, 34,86,343 sterilisations have been done and IUDS have been provided to 3,22,337. The State has achieved 25 per cent reduction in birth rate during 1961-79. There are 419 welfare centres and 1769 sub-centres in rural areas and 148 centres in urban areas implementing family welfare programmes.

Animal Husbandry

In animal husbandry the State has shown impressive performance. There is a network of 3,846 veterinary dispensaries and hospitals looking after the welfare ot the state's cattle population. In 1956 a single veterinary institution had to cater to the needs of 50,000 cattle. Over years the ratio has been brought down to one institution for 5,000 cattle.

The white revolution has set in AP also. The State has about 70 dairy units, and cooling centres. More than 3 lakh dairy farmers supply milk at about 7 lakh litres a day. The products of AP Dairy Development Corporation, like Vijay Spray, Vijay Ghee, Cheese, and other milk products are famous all over India.

Space Research

The story of AP is not complete without a reference to the SHAR centre at Sriharikota island. The Centre has been developed as a testing and launching range for sounding rockets and satellite launch vehicles. The SHAR serves as the prime mission control centre for all launch vehicles and spacecrafts launched by India. It is also the nerve centre of the ISRO tracking network.

Weaker Sections

For the uplift of the weaker sections of the society the State has been implementing many a programmes like distribution of surplus lands, provision of house sites, reservations in employment, Intergrated Rural Development, adult education schemes and so on.

Thus Andhra Pradesh has progressed well during the last 25 years. Still the State has to go a long way to achieve all round development and no doubt, given the political will, the day will not be far off. ☐

Solar Power in Soviet Union

SOLAR radiation is an ideal source of energy. Soviet Scientists have developed a scheme of solar power station based on thermodynamics. A pilot plant of 5-megawatt capacity is under construticn near the village Mysovoye in the Crimea.

A 70 metres high tower is to be erected in the middle of a field of heliostats—flat—mirrors turning to follow the sun. The reflected rays are focussed on the surface of a boiler installed on top of the tower. Temperature in the bioler reaches 300°. Water evaporates and steam is fed under pressure to the turbines in the machine-room. Such is the layout of this power station.

Solar energy can also be converted into electric power with the aid of photelectric units. In the Soviet Union land-based industrial photogenerators of up to 500 watt capacity, capable of continuously operating for at least 20 years, are already in operation.

Work is also under way in the USSR on using solar energy for heating purposes. The application of solar plants in the country's southern areas can effect an annual saving of 15—20 million tons of conventional fuel.

During the last five-year period almost a score ot experimental projects—apartment houses and public buildings based on the utilisation of solar energy for hot water-and heat-supply and air-conditioning—were built. In the current five-year plan period (1981—85), it is intended to build a still larger number of such projects. On the basis of testing results, the best design approaches will be incorporated in standard designs.

(*Soviet Features*)

APSFC: An Assessment

Dr. C. S. Venkata Ratnam & B. Appa Rao*

THE Second Plan period witnessed the beginning of the positive and definite process of institutionalising the flow of finance to the small-scale sector. The establishment of State Financial Corporations (SFCs) under a Parliament Act in the year 1951 opened a new era in the sphere of small-scale industrial financing of the country. Although the Act was promulgated in the year 1951, the Andhra Pradesh State Financial Corporation (APSFC) came into existence only in 1956. After the reorganisation of the State in 1956 the two existing financial corporations of the states of Andhra and Hyderabad were amalgamated to form Andhra Pradesh State Financial Corporation.

An analysis of the balance sheets of the APSFC from its inception in 1956-57 to 1980-81 indicates that its assets steadily increased from Rs. 160.99 lakh in 1956-57 to Rs. 1,382.10 lakh in 1971-72, to Rs. 9,796.66 lakh in 1980-81. While in its initial stages investment accounted for a major proportion of the assets, the share of loans and advances in the total assets steadily went up from less than 2 per cent in 1956-57 to a little over 80 per cent in 1971-72 and to over 91 per cent in 1980-81. The decline in the share of investments in the total assets of the Corporation from about 55 per cent in 1956-57 to about seven per cent in 1971-72, to less than two per cent in 1980-81 reflects the changing style of functioning of the Corporation and mainfests that the Corporation had lost its entrepreneurial character and became more of a term lending institution. The share of cash and bank balances in the total assets declined from about 16 per cent in 1956-57 to less than six per cent in 197-72. It increased marginally to about six per cent in 1977-78 and declined once again considerably to less than two per cent in 1980-81. Though the proportion of cash balance to the total assets fluctuated in the intermittent years, the trend on the whole showed a downward swing. This clearly is a proof of increasing efficiency in liquidity management.

On the liabilities side, the Corporation's capital structure was heavily loaded with capital and reserves. The share of the capital and reserves in the capital structure, however, declined from over 93 per cent in 1956-57 to about 87 per cent in 1960-61. From 1961-62 the Corporation began to issue debentures and raise deposits. Two years later it started resorting to borrowings from institutions. As a result of these efforts towards tapping multiple sources of financing to augment the resources, the share of capital and reserves declined to less than 16 per cent by 1971-72 and to about 14 per cent in 1980-81. During the sixties and the seventies the share of bonds and debentures in the total liabilities of the Corporation had increased more or less steadily from over 23 per cent in 1961-62 to about 36 per cent in 1971-72 and over 40 per cent in 1980-81. The share of borrowings in the total liabilities of the Corporation also increased from less than four per cent in 1963-64 to about 42 per cent in 1970-71. Thereafter the share of borrowing in the total liabilities varied between 26 per cent to 35 per cent. In 1980-81, borrowings from institutions accounted for about two-thirds of the total liabilities.

Sources and Uses of Funds

To gain further insight into the activities of the Corporation, its sources of funds during 1976-77 to 1980-81 reveal that it is mainly dependent on borrowings from the RBI and the IDBI. The share of these sources of funds increased from 46 per cent in 1976-77 to 50 per cent in 1980-81. In the last two years, however, the APSFC generated additional funds by resorting to market borrowings, issuance of bonds and loan collections. The share of these sources of funds increased from less than 20 per cent in 1976-77 to nearly 33 per cent in 1980-81. This is a welcome feature indeed, as in this respect the APSEC's position is better than any other SFC's in the country, SFCs in general showed a tendency to rely nearly on only one institution—the IDBI.

An analysis of the uses of funds by the APSFC during the above period indicates that the share of loans disbursed increased from over 55 per cent of the total funds to about 75 per cent. The share of investment in shares, repayment of loans and deposits registered a decline. The pattern of utilisation of funds indicates the tempo of steady growth in the activities of the Corporation.

Working Results

The income of the APSFC had increased steaditly from Rs. 102.43 lakh in 1971-72 to Rs. 371.37 lakh in

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1977-78. In 1978-79, however, it declined by 136.30 lakh (i.e. from 371.37 lakh to 235 lakh). The main reason for the sharp decline in the income of the APSFC in 1978-79 was not slackness in its activities but a change-over from mercantile system of accounting to cash system in the presentation of financial results in annual accounts. As a result of the change in the accounting system, the APSFC had to pay income tax only on incomes realised and the income increased steadily to Rs. 765.80 lakh in 1980-81.

The main source of income for the APSFC is interest on loans and advances the share of which ranged from 87 per cent to about 94 per cent during 1971-72 to 1980-81. Income from investments and deposits declined steadily during the period because of the decrease in the size of investment and deposits of the APSFC over the years. This is largely because the APSFC began to earmark progressively a greater proportion of its funds to loans and advances than on any other purpose.

Financial Assistance

The phenomenal growth in the activities of the APSFC during the last 25 years (1956-57 to 1980-81) is appreciable. The applications received by the Corporation increased from 30 in 1956-57 to 248 in 1960-61. From 1960-61 to 1967-68 the number of applications were less than hundred in each year. Thereafter the momentum picked up from 342 in 1971-72 to 2,600 in 1980-81. The total number of applications received during the 25 years' period was 14,834 and assistance was granted against 13,382 applications. Throughout the seventies, however, assistance was given against more than 70 per cent of the applications received. The total amount sanctioned to the 13,382 units upto 1980-81 was Rs. 21,546.92 lakh. On an average, nearly 79 per cent of the amount applied for was sanctioned during the period. The proportion of amount sanctioned to the amount applied for varied from 26 per cent in 1960-61 to cent per cent in 1969-70. An amount of Rs. 12,929.34 lakh was disbursed, constituting nearly 56 per cent of the amount sanctioned during the period.

The cumulative amount outstanding at the end of 1980-81 was Rs. 10,003.45 lakh which constitutes 80 per cent of the disbursements. Outstandings grew steadily over the years mainly reflecting the tempo of growth in loan sanctions and disbursements. Cumulative arrears also increased from less than Rs. one lakh in 1956-57 to over 965 lakh in 1980-81. The proportion of cumulative arrears to cumulative outstandings varied between one per cent to over 12 per cent during the period with wide and significant fluctuations in the intermittent years. The proportion of cumulative arreas to cumulative outstandings showed an upward trend in recent years, from 3.34per cent in 1974-75 to 12.27 in 1978-79 and 9.65 in 1980-81. This rise in the incidence of arrears is a cause for concern. The APSFC was perhaps aware of this and tightened collection policies and procedures. It even began to take recourse to the provisions under Revenue Recovery Proceedings.

APSFC and Small Enterprises

During the period 1971-72 to 1980-81, the APSFC sanctioned Rs. 18,314.26 lakh to 14,797 units. Small-scale units accounted for 94 per cent of the total units and 60 per cent of the total amount sanctioned during the decade. As many as 14,219 small-cale units were given Rs. 11,000.4 lakh. Of the total amount sanctioned during the period only Rs. 12,483.58 lakh, constituting 67 per cent of the amount sanctioned was disbursed. Over 69 per cent of the amount disbursed was for small-scale units

During 1971-72, out of the total sanctioned amount of Rs. 402.06 lakh, Rs. 249.97 lakh went to small-scale industry (62.17 per cent of the total). Food products manufacturing industry was the major recipient (Rs. 73.51 lakh), followed by chemicals and chemical products (Rs. 47.97 lakh) and textiles (Rs. 37.99 lakh).

The share of disbursements in the total sanctions indicated a steadily declining trend during 1971-72 to 1980-81. While in 1971-72, nearly 82 per cent of the amount sanctioned was disbursed, it declined to 66 per cent in 1977-78 and to less than 69 per cent in 1980-81.

Balanced Regional Development

The Government of India identified 14 out of the 21 districts as backward during the year 1970-71 for extending financial assistance including other incentives to the industries established for the cause of balanced regional development. The APSFC has been offering loans at concessional rate of interest and at lower margin to units located in these districts. Besides offering these concessions, it has launched an action programme to spur enterpreneurial interest in backward areas trough intensive campaigns organised jointly by financial and development agencies. These campaigns aim at providing detailed information and guidance on the spot at door steps of the entrepreneurs. In these campaigns problems of regional development were considered from both and micro and micro levels.

During 1975-76 the APSFC started a new scheme styled as 'MINI LOAN SCHEME' to encourage mind industries in the rural areas of the backward districts where the population was less than 10,000. It has done major spade work through Mini Loan Scheme for rural industrialisation. As a result, the Corporation was instrumental in securing jobs for the people with limited resources for starting small units.

The APSFC began to finance projects set up in backward areas from 1969-70. In aggregate terms, it financed 10,665 projects with a financial outlay of Rs. 8,398.34 lakh upto the end of 1980-81. The number of units set up in backward areas with APSFC's assitance increased from 126 to 1,590 in 1980-81.

Outstandings

Througout the period from 1971-72 to 1980-81 over 80 per cent of the units for which loans were disbursed remained on outsanding accounts The steady increase in outstandings in absolute terms is only to be anticipated in a growing financial institution. An ever-increasing tempo of sanctions and dibursed remained on outstanding accounts cause much anxiety because it mainly reflects the steep increase in the volume of sanctions and disbursements in recent years. Almost all the units assisted have a gestation period. Consequently wherever there is a perceptible growth in sanctions and disbursements the entire amount disbursed and interest thereon will be shown as outstanding, usually for a period of not less than two years. Considering the fact that the APSFC has also been resorting to revenue recovery proceedings for the collection of arrears with satisfactory results, the increase in outstandings per se may not be viewed with apprehension.

The APSFC started a scheme in 1973-74 to provide foreign exchange loans to entrepreneurs under World Bank's IDA line of Credit. It provided this assistance of the order of Rs. 90.48 lakh in 1975-76, Rs. 122.73 lakh in 1977-78, Rs. 181.70 lakh in 1978-79 and Rs. 318.79 lakh in 1980-81. The cumulative effective sanctions as on 31st March, 1981 were Rs. 939.21 lakh to 81 units.

Technocrat Scheme

The APSFC introduced the Technocrat Scheme in February, 1972 for tcehnically qualified persons like graduate engineers or diploma holders to start their own industries in their lines of specialisation. The main objective of the scheme is not only to extend financial support for technically qualified persons, but also to reduce the unemployment among qualified technicians. Besides, the scheme also encourages maximum utilisation of skilled hands for higher productiivty. The total effective sanctions under this scheme from its inception in 1972-73 upto 31st March, 1981 amounted to Rs. 297.08 lakh covering 169 units.

During 1979-80, APSFC introduced the Composite Loan Scheme in lieu of mining loans scheme. Under it loan assistance would be sanctioned upto 100 per cent of the project cost for promotion of cottage, village and small-scale industries in tiny sector for both term loan and working capital whenever the project cost does not exceed Rs. 25,000 and for units located in villages and towns with population not exceeding 50,000. The cumulative sanctions made under the scheme upto 31st March, 1981 were Rs. 80.43 lakh to 438 units.

Suggestions

Necessary steps need be taken for effective implementation of the various programmes and strengthening the activities of the APSFC. Joint publicity should be launched by the Central and State Governments and the SFCs to educate the people, particularly those is rural areas about the activities of SFC.

The Corporation is facing difficulty in enlarging its operations due to statutory requirements regarding payment of guaranteed dividends and taxation. These, together with the interest rates it has to pay on its borrowings, made it virtually impossible for the Corporation to liberalise the terms of its lending. The RBI and the State Government should take over the entire equity capital of the Corporation and forgo the dividend on share holdings. It is pointed out here that the RBI put at the SBI's disposal, the dividends due to it from the latter to facilitate the opening of branches under he expansion scheme to subsidise the losses incurred by the new branches. For strengthening the activities of the Corporation, the State Government should endeavour to route its loans to small scale industries through the APSFC. The commission payable by the Government for such service should at least be sufficient to cover the expenses incurred by the Corporation. Further, the APSFC should be made liable for the debts that may arise.

Financing agencies should be able to raise funds upto 20 times their capital by the issue of bonds or debentures which should be subscribed for, it necessary, by Government agencies like the LIC. The interest may be made tax-free unless government guarantees the issues. It is desirable that the APSFC may issue short-term bonds (3|5 years) for smaller amounts (Rs. 5|10 lakh) and the RBI may take up, in deserving cases the unsubscribed portions of the issue.

Acceptance of savings bank deposits by the SFCs at a reasonable rate of interest will provide a continuous flow of funds which are not likely to be withdrawn in large amounts without sufficient notice. While it is not suggested that interest on term-deposits should be exempted from tax, some method may be evolved whereby the SFCs could accept savings bank deposits on more attractive terms, e.g., by allowing a higher rate of interest. Withdrawals could be restricted as in the case of post office savings accounts.

Small-scale units would benefit betttr if the APSFC could reduce its rate of interest. It may also be mentioned that the provisions of the Section 25(2) of the SFC's Act enabling the grant of loans by the SFCs to industries against the guarantee of state governments do not seem to have been availed of so far. The small-scale industries would be benefited greatly if the Government of Andhra Pradesh makes this provision operative and helps industrialists in obtaining finance from the APSFC where adequate fixed assets are not available to be offered as security. The burden of incidental charges on loans such as stamp duty, registration fees, etc. could be reduced by the Government of Andhra Pradesh on par with State Governments like Assam, Rajasthan and Punjab which have been remitting either partially or fully the stamp duties in respect of mortgage created in favour of the respective SFCs.

The applications for loans from small scale units are generally incomplete and vague. Moreover, considerable reluctance is shown by a majority of the applicants to disclose full facts of their affairs or to take the Corporation into their confidence. In the absence of such information, it is difficult for the APSFC to make a proper assessment of the scope and prospects of an industry.

The loan application forms should be simplified and at the same time made more comprehensive. The applications should also preferably be in the regional language. The APSFC should also have a data bank on the problems and prospects of different assisted units in each indutry.

Appraisal and Inspection

It is only recently and specially with the introduction of the IDA credit facility routed through the IDBI that the APSFC is compelled to tone up its appraisal standards as a precondition for availing the IDA and World Bank credit. As a norm, each assisted unit should be inspected at least once at predisbursement and post-disbursement stage to ensure that implementation of the project is in conformity with the facilities and utilities for which assistance is made available. Considering the enormity of the task of inspecting small units scattered all over the state, the APSFC should at least have conducted such detailed and regular inspections of units borrowing more than Rs. 10 lakh which are relatively smaller in number. Even this was not thought of at any level.

Because of low rates of interest charged by the APSFC compared to bank rates which are three to four per cent above the APSFC's, the borrowers as a class have a tendency to repay bank dues and run into default with the APSFC. No scheme has so far been devised by the APSFC either to stipulate higher penalty fees for arrears or to stipulate higher rates of interest than normal ones and allow substantial rebate for timely repayment of instalments.

Branch expansion has not been taken up by the APSFC in equal measure. It should open its branches in all districts of the State. Considering their total territorial coverage, their present number is too small. For the APSFC, branch expansion programme has certain distinct advantages. Possible loopholes for diversion of funds to other purposes can be located and properly plugged. The presence of financing agency in the vicinity of industrial units may act as a deterrent to misuse of public funds. It will also enable it to reduce regional imbalances in the State.

As a regional development bank, the APSFC should view financing function as a secondary one, the primary function being promotional. The promotional role includes project identification, preparation of feasibility studies, project formulation and assessment, resource mobilisation, implementation of projects and entrepreneurial guidance, training and motivation. The Corporation should also assign greater importance to underwriting, guarantee of issues of shares and participation in equity finance.

Industrialising Backward Regions in A.P.

N. V. Nagarajan*

ANDHRA PRADESH is one of the backward states ranking ninth in the list of backward states. So the Government has embarked upon a massive package of incentives to industrialise all the backward areas. In each state certain districts have been identified as backward. Concessional finance including lower rate of interest, prolonged period of repayment, participation in the share capital, and reduction in underwriting commission will be given in backward districts, by Central financing institutions. A special subsidy of 10 per cent of the capital outlay upto Rs. 50 lakhs is given to all investments made in these tracts. Added to this Central assistance, the state offers some more under its own incentive schemes.

All the new industries which started production from January, 1976 in 120 Blocks of backward areas and 27 tribal development blocks are eligible to get these incentives. These industries which go in for a substantial expansion are also eligible to these loans.

Subsidy on investment and interest :

Entrepreneurs setting up new industrial units are eligible for investment subsidy on the fixed capital cost at 10 per cent of the fixed capital cost subject to a ceiling of Rs. 10 lakhs in all the areas declared backward under the six point formula by the Government and in tribal areas it is 20 per cent subject to a maximum of Rs. 15 lakhs.

New industrial units with fixed capital cost not exceeding Rs. 5 lakhs set up by the educated self-employed or technocrats get a subsidy upto 3 per cent on the interest accrued to the capital borrowed from the financial institutions.

Interest-Free Sales-tax Loan

The State Government gives an interest free sales tax loan for starting new industrial units and for expanding the existing ones. Entrepreneurs setting up industries are eligible for interest free sales-tax loan equivalent to the tax paid by them under Andhra Pradesh General Sales-Tax Act, if any on construction materials, plant and machinery and equipment during the pre-production stage and purchase tax/sales tax paid by them under the Central Sales-tax Act, during the period of five years from the date of going into regular production, on raw material, components and finished goods.

Subsidy on Power and Water Royalties

Industries are exempted from paying water tax in respect of water drawn from sources not maintained at the cost of Government or local body. The Government refunds the royalty on water drawn by them from a Government source. Also subsidy on power consumed to the extent of 10 per cent in the case of medium and large industries and 12.5 per cent in the case of small industries is granted. However the subsidy is not extended to industries which are allowed concessional tariffs by A. P. State Electricity Board.

Supply of raw material and machinery

Raw material servicing centres have been opened by the A.P. Small Scale Industries Development Corporation at selected places in the State. The Centre procures various raw materials needed by the industries and supplies at concessional rates. The Government under the aegis of National Small Industries Corporation and the APSSIDC arranges to supply machinery on hire-purchase basis at easy instalments. The APSSIDC provides financial assistance upto 90 per cent of the cost of machinery not exceeding Rs. 2 lakhs to each scheme subject to an investment of 5 per cent margin money by the entrepreneur; the balance is contributed by the Industries Department.

Research Fellow, Deptt of Economics, Nagarjuna University

A.P. Industrial Development Corporation

APIDC offers financial assistance and also participates in direct promotion of industrial ventures in suitable cases. It has so far assisted 49 industrial organisations of a total financial assistance of Rs. 7.9 crores. It's rate of interest is 2 per cent above the bank rate with a minimum of 7 per cent per annum. Projects for the backward areas would be allowed a longer amortisation period of 15 to 20 years against the normal repayment period of 10 to 15 years.

A.P. State Financial Corporation

The APSFC helps mainly in acquiring fixed assets, undertaking issue of Bonds, Stocks, Shares and debentures and granting foreign exchange loans. The loans of APSFC range between Rs. 10,000 to 30 lakhs. It offers attractive rates of interest ranging from 9 per cent in backward areas for Small-Scale Units and 6 per cent for medium and large scale units. Ancillary units are given higher loan assistance upto 90 per cent. Technocrafts are given not only higher loans margins but also rebate on interest.

Department of Industries

Under the State Aid to Industries Act, the industries department sanction secured loans to upgrade the units run by artisans to small industries and also for the further development of existing small industries. Loans are also sanctioned to individual artisans pursuing trade like carpentry, blacksmithy etc., in rural areas to an extent of Rs. 500 to each on personal security to purchase tools and for working capital. It provides margin money loans to SCs, STs and listed BC and EBS entrepreneurs to an extent of 20 per cent of the cost of scheme.

Foreign Exchange

The World Bank credit is being routed through the IDBI to the APSFC for disbursement among industries requiring foreign exchange. These loans are given for importing plant, machinery and know how. Foreign Exchange loans can be offered to small and medium scale industries whose investment in share capital and reserve does not exceed Rs. 1 crore. These loans range from Rs. 10,000 to Rs. 30 lakhs. While proprietory and partnership concerns are eligible upto Rs. 15 lakhs, private and public limited companies and registered co-operative societies are eligible upto Rs. 30 lakhs. The loans to be sanctioned will be divided into two components consisting of rupee loan and foreign exchange loan. The rates of interest comparatively are very less and preference is given to the backward regions in disbursing the loans.

Apart from the financial institutions, the A.P. Khadi and Village Industries Board and Small Farmers Development Agency have got a great say in the industrial development of Andhra Pradesh.

Incentives for Marketing

The Government of A.P. extends the following marketing assistance to industries :

(a) All Government and Quasi-Government Organisations including State owned Corporations are required to purchase their reqirements from local units.

(b) Price preference to a tune of 10 per cent is given to indigenous products over imported ones.

(c) Local products get 5 per cent price preference over products from outside the state.

(d) The products of co-operative societies get 5 per cent price preference over others.

(e) Cottage and Small Industries products are given 10 per cent price preference.

(f) The local products with ISI mark receive 2 per cent over other products.

(g) Small industries are exempted from payment of EMD and security deposits. The APSSIDC and NSIDC assist in various ways in marketing the products of Small Industries.

In addition to these the Government of Andhra Pradesh has announced a package of incentives in various fields to cover the entire state. If all these incentives are properly utilised, Andhra Pradesh will have an immence potential for industrial growth.

Suggestions

Considering the various incentive schemes offered by the Government and Semi-Governmental agencies the following suggestions are made:

(a) The Development of small and agro industries would not only provide increasing employment opportunities to the surplus labour of the State but will also cater to the various needs of the economy as a whole.

(b) While giving industrial incentives in backward and tribal areas localisation of certain industries should also be made in selected areas for an effective use of local raw material and expertise.

(c) The District Industries Centres should be streamlined in such a way that they come forward to render their utmost favour.

(d) A separate cell should be created in the Ministry of Industry to check and countercheck the bureaucratic lapses in awarding the incentives for a clean and efficient administration.

(e) Most of our new entrepreneurs, particularly the small-scale ones who do not know the fundamentals of management—financial, technical or administrative, should be given a basic training programme in the said skills.

(f) All infrastructural facilities should be made available to every new entrepreneur—from the preparation of project report right up to the units, commercial production so that no defeatist attitude develops at any stage in his effort.

(g) Industrial Estates and Autonagars should be developed in almost all the backward areas for a decentralised industrial set-up. The Government should put a ban on the further expansion of industries in the urban areas and any further expansion should be made only in the listed backward districts.

Rural Industrialisation of Anantapur District

T. Subbi Reddy and P. Narayana Reddy*

ANANTAPUR district of Andhra Pradesh, has vast stretches of cultivable land and abundant labour force. The district is endowed with rice mineral resources. But people of this district have been facing draught almost every alternate year. The resources have not been properly exploited. Large scale unemployment and underemployment have become common. To ameliorate the plight of these people, massive rural industrialisation programme should be launched.

A look into the present industrial position of the district indicates that the local enerpreneurship is at a low ebb. Under the District Industries Centre, the number of small scale industries registered with Directorate of Industries at the end of March, 1980 was only 2124. Most of the units are agro-based and general engineering. Many of them were started under different schemes like self-employment scheme, special employment scheme, industrial co-operative etc The total investment was to the extent of Rs. 1,258.42 lakhs and 17,159 persons were employed. To develop conducive industrial climate, and to provide infrastructure facilities in the district, Government has set up five industrial estates with 185 sheds. In addition, 8,969, handloom units producing silk and fabrics have employed 29,580 persons. In mat weaving and basket making 1,500 artisans are engaged.

Scope for development in agriculture

The economy of Anantapur is mainly based on agriculture, sericulture, horticulture, and mineral resources. The present production of groundnut is 2.08 lakh tonnes per annum. Now only 39 decorticators utilise only 64,000 tonnes. The surplus of 1.44 tonnes is exported to other districts. And there are 75 oil mills including 5 solvent extraction plants with a capacity of one lakh tonnes as against of 1.50 lakh tonnes of kernal. To utilise the surplus quantity there is scope to establish 60 more decorticators in rural areas.

The annual production of paddy is 1.78 tonnes, and 479 rice milling units utilise 1.57 lakh tonnes. There is a possibility to increase the production of paddy and also establish 24 mini modern rice mills to utilise the surplus. Similarly there is only one Khandasari sugar factory with a capacity of 20,000 tonnes where the sugarcane production is 3.85 lakh tonnes. The rest is entirely consumed for the production of jaggary. One sugar factory is coming up shortly with a capacity of two lakh tonnes per annum. By 1982-83 the sugarcane production will be doubled and so one more sugar factory, besides a good number of crushers, can be established. In the case of cotton, 12 ginning units with 100 gins are utilising 6,000 tonnes, leaving a surplus of 15,000 tonnes. Here also 30 more cotton gins can be encouraged to utilise the surplus.

In Khadiri and Hindupur taluks mulbery trees are grown in 14,000 acres and 6,000 tonnes of cocoon are produced. Further 40,000 acres will be brought under intensive sericulture development to produce 14,000 tonnes of cocoons by 1982-83. About 20 silk reeling charkha and filature units consume only 50 tonnes of cocoons. The balance is sold in Karnataka State. There is a vast scope in these two taluks to start more than 100 filature type units and about 1,000 charkha units. (Rural Artisan programme employing three persons in each unit. Sericulture is one the important alternative sources in the district to show employment to agricultural labourers to some extent.

In 29,500 acres different fruits are grown and the yield is 5.59 lakh tonnes. Jams, pection, fruit juices units can be started under small scale sector particularly in Tadpatri taluk. So far no unit has come up in this line; similarly fruit canning and preservation, tomato canning units can also be started.

Exploitation of Mineral Resources

Anantapur district has Barium deposits of 77,000 tonnes mainly in Tadpatri taluk. Only three units exploit a meagre quantity of the metal but there is a lot of scope to utilise the metal for industrial purposes. There is scope for starting lithopaint industries and setting up of a three roller Raymond mills for pulverising barytes. In the district about three million tonnes of high grade lime is available. It is used in manufacturing cement, iron and steel, sugar, calcium carbonate, calcium carbides, bleeching powder industries. Steatite is a hydrated silicate of magnesia popularly known as soap stones. At present three units in Tadpatri taluk are engaged in pulverising this mineral and major quantity is being supplied to the industries located outside the district. Iron ore deposits are abundant and only 75,000 tonnes of iron ore is mined and sent outside. Cuddapah slabs are famous and here is good demand for them. Inspite of this, only 12 units are engaged in the process of polishing. With these natural resources, a good number of units like mini-cement plants, precipitated calcium corbonate, hydrated lime, asbestos, slab polish granite can be started.

For intensive development of small scale units in rural areas the DIC has prepared an action plan to set up 140 types of new units. By 1982-83, 2,411 new units with Rs. 1,260 lakhs of investment will be established. About 14,868 persons will be employed. About 5,000 people belonging to weaker sections will be employed in sericulture and village leather industries. □

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Industrialising Nizamabad District

A. D. Rama Rao*

THE increasing need of the long-term finance for the industries was realised after the Second World War. This paved the way for the establishment of specialised institutions like the Industrial Finance Corporation of India (IFCI). The IFCI meets the financial needs of public limited companies and cooperative societies from its field of activities. Small and medium-sized industries have been excluded from its field of activities. The Central Government enacted the State Financial Corporation Act on 28th September, 1951 for creating separate corporations in the States. Under this Act the Andhra Pradesh State Financial Corporation (APSFC) was set up with headquarters at Hyderabad. It now has 12 branch offices and 8 field offices in various districts of the State. The main aim of the Corporation is to give financial assistance for the establishment of new industries.

Performance

The Corporation has made substantial contribution to the industrial development of Nizamabad District During 1977-79 its Nizamabad branch with a skeleton staff gave credit of Rs. 194.87 lakh. A branch-wise analysis of assistance sanctioned by the Corporation during 1979-80 as also the cumulative sanctions since inception shows that the Nizamabad Branch has sanctioned Rs. 188.73 lakhs to 132 units in 1979-80. And since its inception it has sanctioned Rs. 485.77 lakhs to 472 units. The assistance provided by this branch is 20 per cent out of the total sanction of Rs. 9,319.32 lakhs in the entire State.

Nizamabad District is identified as industrially backward by the Centre as well as the State Government and they are providing 15 per cent and 10 per cent subsidy respectively in different taluks and panchayat samithis under Six-point Formula.

The total number of beneficiaries from Nizamabad branch are 285 and in this particular district alone there are more than 200. The important units for whom the assistance is provided include modern rice mills, biscuit manufacturing, mini rice mills, neem oil plant, general electrical workshops, cotton ginnings, quartz powder, paper bags, polythene bags, two-star hotels, aluminium utensils, flour mills, par-boiled rice mills, ice plants, khandasari sugar, power capacitors, solvent oil extractions, nuts and bolts, assembling of watch spare parts, printing press, turmeric polishing unit and many others. But the surprising factor is that most of them are located at Nizamabad and Sarangapur industrial estates only.

At the time of inception there were only 45 units and within a period of 4 years, there was a spectacular increase in the number of units started with the assistance of the Corporation. There is an ambitious Rs. 94.35 lakh credit plan for the period 1980-82 for Nizamabad District. Of this a major portion (Rs. 57 lakh) is earmarked for credit for new rice mills and mini rice mills and modernisation of existing rice mills. Rs. 10 lakhs each for biscuit factories and oil expellers, Rs. 7.5 lakh for popcorn units, Rs. 3 lakhs for paper industry and Rs. 1 lakh for photostate units.

The direct employment generated through Nizamabad branch is over 2,000. The performance of the industries financed by the Corporation is generally good but there are problems too. Lack of working capital, shortage of raw materials, powercuts, differences among partners, defective machinery, unremunerative prices for the finished products, severe competition from well-established units, lack of skilled workers and marketing are some of the general problems faced by different industrial units.

It is well-known that the recoveries in this district are no problem. The authorities say that it is very difficult to prove original title of the land and buildings. The time taken for the sanction of the loans ranges from 45 days to six months. Before the sanction of the loan, the applicant has to fulfil various general and legal formalities and they should cover risk.

Suggestions

It is suggested that the approach for loans should be made easy. Loans should be sanctioned and disbursed early. More assistance should be given to units established in rural areas. Instead of concentrating on modern rice mills and mini and parboiled rice mills, diversification of industries should be encouraged. More self-employment schemes should be finalised. The Government should enter the market and purchase the products of the industries for which they have provided the finance.

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CORRECTION

In the article "Tasks Before the Exim Bank" which appeared on page 8 of our issue 1-15 October, 1981, the first sentence of third para should read "The deficit in India's foreign trade has shown a steep rise in recent years from Rs. 6,210 million in 1977-78 to an estimated figure of Rs. 55,000 million....and not as published. The error is regretted.

Rapid Industrialisation of W. Godavari District

V. Ananda Rao*

WEST Godavari District of Andhra Pradesh is making quick progress in industrial development. The district abounds in paddy, sugarcane groundnut, tobacco and chillies, and provides ample resources for agro-industries. The forest area of 2.20 lakh acres provides timber, bamboo, beedi leaves etc. The mineral resources of white and fire clay available in the district, form a good potential source for numerous ceramic industries. The 19 km. long coast line comprising saline lands of 1200 acres provides good scope for salt manufacturing industries. Further the district is endowed with all infratructural facilities like water, power, railways, network of canals and road communications.

About 1540 small scale industries are functioning in the district with a total investment of Rs. 16 crores providing employment to 1600 persons. Another 225 small scale industries with an investment of Rs. 347 lakhs providing employment to 600 persons are also coming up this year.

The Department, under self-employment schemes, has sanctioned 370 schemes so far with a capital of Rs. 124 lakhs and employed about 1800 persons. The Department has sanctioned Rs. 11.18 lakhs towards seed capital. The schemes include ice factories, cycle leather seats, tobacco, Churu Oil rotary and so on. About 130 Special Employment Schemes for weaker sections have so far been cleared by banks for total investment of Rs. 10 lakhs. Out of these, 109 schemes have been launched with a total investment of Rs. 7.17 lakhs employing 283 persons.

Twenty five Weaker Section Industrial Cooperative Societies have been registered. They include 112 Scheduled Caste and 662 Backward Class artisans for the manufacture of leather goods, cut bamboo products, palm fibre processing, wooden furniture, safety matches, stone quarrying and country bricks. Integrated Tribal Development Agency and A.P. Khadi and Village Industries Board have sanctioned Rs. 1.11 lakh and Government have provided share capital and working capital of Rs. 0.27 lakhs. One coir industry was started exclusively for the benefit of Scheduled Castes, providing employment to 95 persons.

As many as 6200 artisans have been provided assistance to a tune of Rs. 35 lakhs through various agenncies such as Khadi and Village Industries Board, Integrated Rural Development Programme, Six Point Formula programme and Half-a-Million Jobs programme.

For the creation of infrastructural facilities in the district, three industrial estates including a cooperative industrial estate were set up with 4 sheds and 203 plots at Eluru, Palacole and Bhimavaram towns. At Palacole, 17 plots are vacant in the industrial estate and at Bhimawaram 127 plots are under development.

The main handicrafts in the district are the Eluru Pile Carpets and Narsapur Crocher laces. The skilled and unskilled personnel working in the industry are about 700. Annually Rs. 40 lakhs worth of carpets are being exported. To develop this carpet industry, the All India Handicrafts Board established seven carpet weaving training centres at Eluru during February 1974. So far 12 batches (570) trainees underwent training. During this year 350 candidates are undergoing training. Out of the candidates trained, 350 are working in the existing carpet manufacturing units. The Department has proposed to set up functional complex for the manufacture of Pile carpets under special employment schemes with the trained persons of the training centres and others. There are proposals for establishing two more training centres at Chintalapudi and Polavaram towns by the A. P. State Trading Corporation with the assistance of the All India Handicrafts Board.

The lace industry first introduced in Narsapur has gradually spread to the neighbouring taluks. At present 1 lakh artisans consisting of mostly ladies are engaged in this craft. There are 50 exporters now carrying on the export business in Narsapur and Palacole towns. The value of lace goods exported during 1979-80 is about Rs. 59 lakhs.

There are 3 defibering units besides Government Coir Goods Factory functioning in this district. The Government Coir Goods factory produced goods worth Rs. 1,00,890 during 1979-80 and worth Rs. 1,11,000 during 1980-81.

Under the programme of training rural youth in special employment schemes, seven institutions have already been identified for imparting training to 280 candidates, in the trades of palm products, footwear, carpentry, tailoring, coir products, welding, electrical wiring and auto mechanism. Identification of candidates is in process.

During 1980-81 training will be given at the rate of 40 candidates in each of the Integrated Rural Development Project Blocks at a total cost of Rs. 1.8 lakhs. At a cost of Rs. 66.00 training facilities will be extended to the remaining 11 non-I.R.D.P. Blocks. A functional complex in carpet manufacturing was to be developed in 1980-81 under the special employment schemes. Thirty candidates were selected by the

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*Taluk Public Relations Officer, Eluru

Committee constituted for the purpose under the chairmanship of the District Collector (Indus. Wing). A site measuring 2.50 acres has been selected at Tangellamudi suburb of Eluru for the construction of a building. The State Bank of India, Eluru, has come forward to finance these schemes.

The Andhra Pradesh State Financial Corporation and the commercial banks have been implementing the composite loans schemes in this district. During the year 1979-80, 161 cases have been processed by the various banks, 53 cases sanctioned, 30 cases dropped and 78 cases are pending with the various banks and the A. P. State Financial Corporation.

The department has identified growth centres for development and growth of small-scale industrial units at Eluru, Tadepalligudem, Bhimavaram, Tanuku, Palacole, Nidadavole, Kovvuru, Narsapur and Jangareddigudem. Under the Special Component Plan aimed at bringing 5,000 Scheduled Caste families above the poverty line 23 small scale units of Rs. 1.5 lakh have been established and 70 Scheduled Caste families have been employed ☐

Case Study

Lead Bank Scheme in Nizamabad

J. Janardhan[*] and Moh. Abdul Quddues

NIZAMABAD District, in Andhra Pradesh, was allotted to the State Bank of Hyderabad as lead district. As a first step the lead back had conducted survey in the district and submitted its report by June 1, 1971. The first credit plan for five years from 1974-75 to 1978-79 was prepared in consultation with the district authorities and implemented.

At the end of June 1971, there were 26 branches of commercial banks, 6 branches of District Co-operative Central Banks and 7 branches of primary agricultural development banks in the district. At the end of December 1979 the branches of commercial banks increased to 68 and District Co-operative Central Banks to 16. Out of 68 branches of commercial banks 16 are in Nizamabad town and remaining 52. in rural and semi--urban areas. The average population served per Branch has been brought down to 19,300 from 50,000. The expansion of branches of commercial banks was not evnly spread. Armoor block is served by 11 banks and coverage of average population is 15,400 per branch whereas Domakonda and Yellareddy blocks are served by three branches each and coverage of population was 34,200 and 34,400 respectively.

Upto the end of December 1979, 430 villages were adopted and 622 villages were financed by all the commercial banks. The State Bank of Hyderabad (the lead bank of the district), Syndicate Bank and Andhra Bank together had adopted 392 out of 430 villages. Total number of villages adopted by all the commercial banks, form 49.5 per cent of the total inhabited villages in the district. The Syndicate Bank ranks first in adoption as well as in extending finances, to villages.

The Commercial banks and co-operative banks had disbursed loans to the extent of Rs 1775.46 lakh against the allocation of Rs. 1478 lakhs under crop loans. The District Co-operative Central Bank is leading, as it alone had financed to the tune of Rs. 899.32 lakhs (50 per cent of the total crop loans). The term loans for irrigation wells, pumpsets, agricultural machinery, plough bullocks, carts, dairy, poultry, etc., were distributed to the tune of Rs. 1108 lakhs, against the estimate of Rs. 616 lakhs. The Agricultural Land Development Bank played a significant role by financing Rs. 697.69 lakhs out of Rs. 1108.11 lakhs (62 per cent of the total disbursement under term loans). The impact of the first credit plan in agricultural sector is that it has created additional irrigation potential to the extent of 35206 hectares generating additional income of Rs. 471.87 lakhs. Total number of beneficiaries is 35,404.

The total credit extended to industries was Rs. 395.78 lakhs as against the allocation of Rs. 270.50 lakhs. Of this Rs. 19.59 lakhs were given as working capital and Rs. 376.22 lakhs as term loans. Number of beneficiaries under various schemes were 906. The A.P.S. Finance Corporation played a significant role in financing industries in the District, as its contribution alone is Rs. 194.87 lakhs out of Rs. 395.78 lakhs. More loans were given for modern rice mills, modernization of existing rice mills and hullers, rotary oil mills, casting iron foundries, yarn sizing units and artisans under household industry scheme. It has created employment for 4005 persons generating additional income to the extent of Rs. 266.40 lakhs.

An amount of Rs. 72.751 lakhs together with Rs. 58.809 lakhs under term loan and Rs. 13.942 lakhs as working capital were allocated to the service sector. The actual finance was extended to the tune of Rs. 437.31 lakhs forming 570 percent. Total number of persons benefitted under the scheme was 94038. Empolyment was created for 22180 persons and income generated to Rs. 518.75 lakhs.

The important units to which loans were disbursed are cotton ginning, general engineering, fertilizers-cum-pesticides, retail shops, medical practitioners, eating houses, tailoring unit, trucks etc. Conspicuous amount of Rs. 288.77 lakhs out of 434.24 lakhs was given to retail shops and small and miscellaneous business houses.

Suggestions

Adequate technical and field staff should be appointed to train the beneficiaries properly. There should be linkage of credit with market. Farmers should be paid through cheque for the produce in the market, so that loans can be easily recovered. Marketing facilities are inadequate. Sufficient amount should be allocated for the expansion of market yards and raise the capacity of warehouses. The area of operation of each bank should be clearly demarcated to avoid any overlapping. Proper importance should be given to small and medium scale industries.

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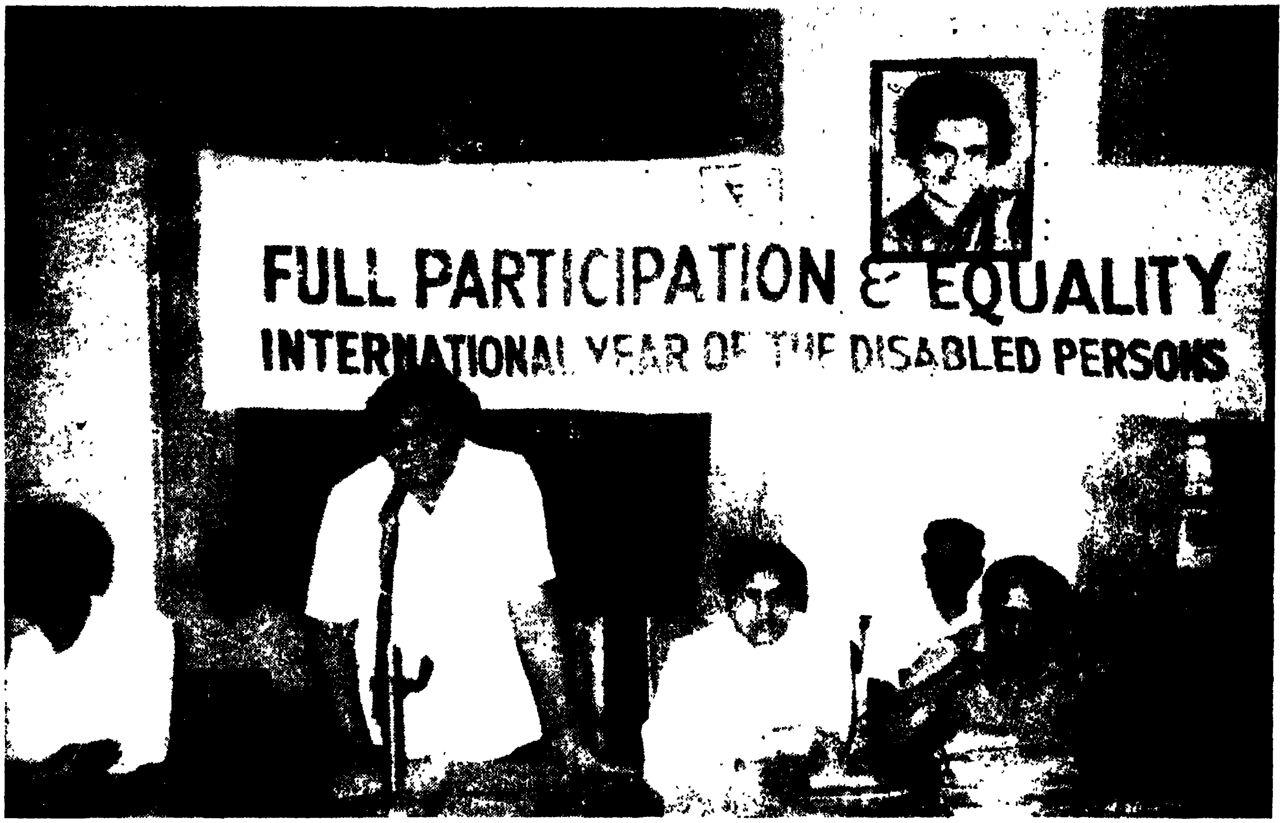
FULL PARTICIPATION & EQUALITY
INTERNATIONAL YEAR OF THE DISABLED PERSONS

Prof. Yadagiri Reddy of Osmania University, a physically handicapped person, delivering his presidential address at the Symposium arranged at Hyderabad as a part of the IYDP celebrations.

Welfare of the Handicapped in A.P.

C. Ramulu[*]

ANDHRA PRADESH, according to the latest Census, has 39,902 blind, 30,580 deaf and dumb and 30,070 crippled persons.

Separate schools have been established for the blind as well as for the deaf and dumb. There are also institutes for imparting training to the teachers to teach in these special schools. Physically handicapped students are given fee concessions and scholarships. Students from I to V Class get Rs. 25 per month, and those in VI to VIII get Rs. 35. In addition, the blind students get Rs. 25 per month towards readers' charges, the orthopaedically handicapped Rs. 23 per month towards purchase and maintenance of the prosthetic appliances and Rs. 15 per month towards transport charges.

Institutions

The Social Welfare Department is maintaining eight Homes for the aged and disabled, blind, orthopaedically handicapped and deaf and dumb with a total strength of 1142 inmates. The Homes are in Hyderabad, Cuddapah, Kakinada, Karimnagar, Tirupathi and Vijayawada. In the Homes, facilities like free boarding and lodging, necessary clothes, books etc., are given at the rate of Rs. 60 per month per boarder. An amount of about Rs. 10 lakhs is provided for the maintenance of these institutions.

A Training-cum-Production Centre for the physically handicapped, with 116 seats, has been started recently. It has provision for various trades like, fitter, welder, turner,, mechanic, printing, radio and television mechanic, stenography and tailoring. The trainees get Rs. 100 per month each, as stipend. A placement officer tries to absorb the trained candidates in public and private sector undertakings.

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[*] Deputy Director of Social Welfare, Government of A.P.

Reservations and Concessions

Three per cent of the posts in the State Government Services have been reserved for the physically handicapped for a period of 10 years, till 1990. The physically handicapped people are exempted from payment of prescribed fee for applications to be submitted to the A.P. Public Service Commission.

Conveyance allowance of 10 per cent of the basic pay is paid to the blind and orthopaedically handicapped employees of the State Government subject to a maximum of Rs. 50 per month. Handicapped persons owing motorised vehicles get refund of half the actual expenditure incurred by them on purchase of petrol/diesel, subject to a maximum of 15 liters per month, for vehicle of below 2 H.P. and 25 liters per month, for vehicles of more than 2 H. P.

Economic Support

Government have been extending financial assistance for the benefit of the physically handicapped persons to purchase typewriters, milch animals, poultry units etc. The value of the assistance ranges from Rs. 3,000 to Rs. 5,000. Financial assistance for crutches, artificial limbs, hearing aids, braille paper etc., would be sanctioned to those who earn less than Rs. 6,000 per annum. A sum of Rs. 21.95 lakhs is provided in the budget for 1981-82 for the rehabilitation of the physically handicapped people.

Finance Corporation

The Andhra Pradesh Handicapped Persons Cooperative Finance Corporation was established in April last. An amount of Rs. 30 lakhs as margin money is utilised for economic support schemes involving an outlay of Rs. 1.50 lakhs. An amount of Rs. 20 lakhs has been placed at the disposal of the Corporation to start three training-cum-production centres for the handicapped in the three regions of the State and for economic support schemes.

To take care of the aged and infirm, Homes for the Aged and Disabled and Old Age Pension Schemes have been started. Old age pensions at the rate of Rs. 30 per month are given to persons of 65 years of age and above who have no support and are physically handicapped destitutes. About 1,50,000 persons are covered under this scheme. During 1980-81 an amount of Rs. 216 lakhs was released under the scheme. The provision for this scheme for 1981-82 is Rs. 346 lakhs.

Other Concessions

The financial assistance, being given to law graduates belonging to Scheduled Castes, has been extended to the blind law-graduates. The financial incentive for inter-caste marriage for Scheduled Castes and Tribes has also been extended to the marriages between blind and non-blind persons. At least 3 per cent of the housing accommodation in the colonies are reserved for the physically handicapped in the ratio of 1:1:1 for blind, deaf and dumb and orthopaedically handicapped persons.

Funds

During 1980-81, Rs. 67.30 lakhs have been provided for the welfare of the physically handicapped. For the year, 1981-82 initially an amount of Rs. 34.18 lakhs has been set aside. For supply of prosthetic aids free of cast Rs. 2.76 lakhs have been allotted. For setting up a complex for the benefit of the physically handicapped, an amount of Rs. 1.50 lakhs was released to Karimnagar district. Two training-cum-production centres for the benefit of the physically handicapped, are being set up at Ditchapally of Nizamabad district and Machilipatnam in Krishna district with a total outlay of Rs. 10 lakhs.

Voluntary Agencies

Government of Andhra Pradesh have set up the Andhra Pradesh Social Welfare Fund to extend financial assistance to the voluntary organisations working in the field. There are several voluntary agencies and committed enthusiastic social workers in the State who are doing commendable work for the amelioration and welfare of the physically and mentally handicapped people. The ceiling for annual grant is ordinarily Rs. 15,000 and for non-recurring grant Rs. 50,000. In exceptional cases and in the case of old institutions these restrictions are relaxed.

Committees

Government have appointed a State Level Committee under the Chairmanship of the Minister for Social Welfare for the welfare of the phsically handicapped. The Committee takes into consideration the needs of the handicapped persons in the State and mobilises popular support for the action programmes and also evolves the plan of action for promotion, education, rehabilitation and amelioration of the condition of the handicapped people in the State. Another Committee of officers headed by the Director of Social Welfare reviews periodically the reservations and placement of physically handicapped people.

It is hoped that the endeavours of the Government, the voluntary agencies and the efforts of the social workers particularly during the International Year of the Disabled persons would bring about rapid development for the welfare of the physically handicapped in Andhra Pradesh.

Vast Scope for Fishery Development

THE Union Minister for Agriculture, Rao Birendra Singh said that fishing was India's future hope in agricultural exports. With our economic zone covering almost 220 million hectares, almost 2|3rd of the land mass, India has huge marine potential. Even at present India ranked eighth in the world in fish production and first in shrimp production. India exported fish worth Rs. 234.8 crores in 1980-81 and produced about 2.5 million tonnes, of which 1.6 million tonnes came from marine source and 9 lakh tonnes from inland sources. However, this production was just about 30 per cent of our potential.

Rao Birendra Singh was addressing the 12th meeting of the Central Board of Fisheries in New Delhi recently. With regard to avoiding conflict between mechanised boats and country crafts, he said that so far only Kerala and Goa have introduced legislation. He asked other maritime States to pass the necessary legislation without much delay.

Rao Birendra Singh pointed out that a time appears to have come when integrated system combining agriculture, animal husbandry and fishery should be practised. □

Medical Rehabilitation Facilities in India

Dr. Satya Nand*

EIGHTY per cent of India's population lives in the villages and according to a survey conducted in 1961, 90 per cent of disabled persons also live in the rural areas. There is every possible evidence to show that the number of handicapped persons in the country is on the increase. The facts which go in support of this view are :—

1. Increase in population;
2. Increase in average life expectancy;
3. Increased survival rate of premature infants.
4. Increased use of gonadal irradiation by X-ray and atomic irradiation.
5. Increased road and industrial accidents;
6. Use of forceps and late child bearing;
7. Increased incidence of drug addiction and alcoholism;
8. Fall in death rate;
9. Nutritional deficiencies; and
10. With advance in pharmacology, surgery and nursing care more serious and chronic cases are surviving and thus increasing the number of the handicapped.

In order to plan, organise and co-ordinate rehabilitation services for the welfare of the orthopaedically handicapped in the country, the Ministry of Health and Family Welfare set up a committee in 1969. The terms of reference of the committee were :—

1. To co-ordinate the medical rehabilitation activities of voluntary and governmental organisations undertaking the care and rehabilitation of the orthopaedically handicapped;

2. To review the expansion schemes of these organizations and co-ordinate their training programmes of physiotherapists and occupational therapists ;

3. To advise the Ministry of Health in the formulation of proposals and plans for future programme;

4. To recommend to the international organisations the rehabilitation institutions, which are to be assisted by these organisations.

In 1972, another sub-committee was constituted to assess the magnitude of the handicapped cases and the facilities available for their rehabilitation. It was also called upon to assess the facilities available for the artificial limbs and appliances and review the facilities for training of para-medical personnel in rehabilitation.

A Perspective Plan

A perspective 20-year plan (1974-1994) on rehabilitation programme was submitted for consideration at the time of formulation of the Fifth Five Year Plan. The plan was designed to equip the country with facilities to look after the entire handicapped population and make them useful and productive citizens with balanced psychological outlook in 20-years. It envisaged :—

1. The establishment of rehabilitation units at each district hospital for the benefit of the district town and the rural population where cases referred from the primary health centres and taluka hospitals could be looked after.

2. The setting up of full-fledged rehabilitation centre in each medical college hospital for more advanced treatment, research and training purposes.

3. Increase in facilities for training of orthopaedic surgeons physiotherapists, vocational counsellors, speach therapists and medical social workers trained in rehabilitation.

4. The strengthening of the existing 25 Rehabilitation centres to the level of centres proposed for the medical college hospitals along with facilities for training.

5. The establishment of sheltered workshop in each state for those not able to compete in the open market.

In January 1978 the subject of rehabilitation was discussed at the Fourth Joint Conference of CCH & CFWCs and it was emphasised that rehabilitation responsibility for establisment and expansion of vocational rehabilitation services for the physically handicapped in India can be meaningfully discharged by the Ministry of Health & Family Welfare only. These responsibilities would include the organisation of centrally sponsored rehabilitation services, research and training programmes. It was recoganised that though the investment in rehabilitation services is costly it pays social, economic and personal dividends in the long run. It was finally resolved that the Ministry of Health and Family Welfare should draw up a centrally sponsored rehabilitation scheme for implementation during the Sixth Plan.

Working Group

A working group was set up by the DGHS to draw up a detailed scheme on rehabilitation of the physically handicapped for inclusion in the Sixth Plan. The schemes prepared by these experts are rural oriented and cover all categories of handicapped persons except blind, as a national programme for the blind is being implemented under Ministry of Health. The schemes propose the setting up of hehabilitation services at PHC and District levels and the training of medical and paramedical personnel in this field.

Existing Rehabilitation Services

A few national rehabilitation institutions are providing rehabilitation services to the community. These are mainly confined to the urban areas and provide good examples of the extent to which patients with even severe functional limitations or disabilities can be helped to a better life. Now there are approximately 29 prosthetic and orthotic manufacturing centres in the country.

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*Medical Superintendent, Safdarjang Hospital, New [illegible]

Training of Rehabilitation Personnel

Indian Medical Council has recognised physical medicine and rehabilitation as one of the specialities in the field of medicine. Universities of Trivandrum, Madras and Delhi and All India Institute of Physical Medicine & Rehabilitation, Bombay award post graduate diplomas in rehabilitation. The University of Calcutta has started an M.D. course in rehabilitation. The Indian Academy of Medical Sciences awards an MAMS in rehabilitation. There are 21 recognised schools for different specialities. Of these nine are for physiotherapy, two for speech therapy, three for posthetic engineering and seven for occupational therapy. There are eight special employment exchanges for vocational placement of the handicapped. Some voluntary organizations are also very actively engaged in this field.

In nutshell, it can be said that in spite of technical advances in medical services the number of disabled persons and their problems have increased enormously in the wake of the industrial and green revolutions. Although a good deal is being done for their welfare, a well co-ordinated and planned approach to deal with their problems is badly needed. And this can be done only through effective rehabilitation services and co-ordinated efforts of Ministries of Health, Social Welfare and Education and Labour. □

TRENDS

Banks Aid to Medicos in Rural Areas

TWENTY SIX major banks of the country have come forward in a big way with various schemes of financial assistance to medical practitioners including practitioners of Indian Systems of Medicine and Homeopathy. The main object of the schemes is to attract a growing number of medical practitioners to the rural areas, where health services need to be augmented and enlarged.

Medical practitioners who are setting up a dispensary, a clinic or a nursing home in rural, semi-urban and urban areas are eligible for a maximum loan of Rs. 1 lakh on easy terms. The banks have many other schemes to help the doctors to set up practice. □

M. P. Institutions of Mentally Retarded

THE Madhya Pradesh Government have sanctioned two institutions for mentally retarded children at Jabalpur and Raipur. At present there is only one government institution at Indore. Children from outside the city will be provided hostel facilities as well.

Children of such parents whose income does not exceed more than Rs. 500 p. m. shall be given free hostel facilities. □

Disabled Worker Rescued by CM

VISHWAMITRA DWIVEDI, a poor labourer, had lost both hands during drilling operations on the Ban Sagar Project, Madhya Pradesh, in February 1979. As a result he lost his job and did not get any compensation either. Even preliminary action was not taken in his case by the officers of the irrigation department. On hearing the case, the Chief Minister of MP, personally intervened as a result of which the labourer, has now got Rs. 20,000 as compensation and also an alternative job. □

M.P. Scholarships for Disabled

UNDER the Union Government's scheme, the Panchayat and Social Welfare Department of Madhya Pradesh Government will provide scholarships to handicapped, blind, deaf and dumb students from 9th class to post-graduate level in all disciplines including correspondence courses.

Workers' Education

THE Central Board for Workers Education has decided to sponsor a joint educational programme of both the workers and management personnel so that it would be easy to understand each other's problems and work together for better efficiency, productivity and discipline at the plant level. □

NEC to Set up Centres for the Disabled

THE North Eastern Council will soon set up three centres for fitting artificial limbs to the physically handicapped persons at Imphal, Shillong and Agartala. Later, similar centres will be set up in the other units of the region also.

The above decision was taken at a meeting of the Secretaries of Health and Directors of the Health Services of the 7 units of the North-Eastern Region held recently. The meeting held under the Presidentship of Shri K. M. Mirani, Secretary, North Eastern Council further decided that orthopaedic surgeons will be given financial assistance to undergo training in Physical Medicine and Rehabilitation at the National Institute of Prosthetic and Orthopaedic Training in Cuttack and Bombay. The Council would also finance training of technicians and other paraprofessional staff for manning the Centres to be set up in the Region. □

Towards Evolution of Regulated Market System in Kerala

B Shyam Narayan and S. Krishna Aiyer*

AN efficient marketing organisation is essential for assuring fair prices to the farmers, for the elimination of middlemen from the marketing channels and for improving the content and quality of goods marketed. This aspect is of special attention to Kerala as many of its cash crops are facing severe competition in the world market. A survey conducted by the State Bureau of Economics and Statistics some time back showed that the habit of sale of commodities in market places has not actually caught up in the State as in the rest in India. The major share of the produce is sold in the villages of production only without being taken to market places. Only in the case of pepper, tapioca and arecanut a significant share of the total produce is sold in the market places. There are altogether about 2000 markets in the State which conduct daily, bi-weekly or weekly assembling and sales. These markets are controlled by municipalities, panchayats, market committees or private individuals. Also there are 90 odd primary marketing societies in the co-operative sector. Three-fourths of the State's markets are situated near about the consuming centres. The markets, in the State suffer from drawbacks such as inadequate storage facilities, poor layout, unfair practices, poor service, lack of paths inside the market area and insanitary conditions. Owing to inadequate storage facilities the producers are forced to part with the produce even when the prevailing prices are low.

Regulated Markets

The major drawbacks of the present marketing system can be eliminated to a great extent if the markets are regulated under the provisions of the Agricultural Produce Market Act. In Kerala arecanut and coconut are the two commodities which are brought under the regulated market system and that too in the Malabar area of the State.

The marketing legislation now in force in the Malabar area of Kerala is the Madras Commercial Crops Market Act 1933. The object of the Act was to establish markets in important areas for commercial crops through market committes established for the purpose in notified areas. Four regulated markets are functioning under the Malabar Market Committee. Calicut, at Changaramkulam, Vattakkulam, Perambra and Kanhangadu. There are proposals to establish regulated markets at Calicut, Badagara, Baliappattanam, Kasargod and Nileswar. In the above markets the notified commodities under the Act are arecanut, copra and coconut. Transactions relating to the notified crops are allowed in the licenced premises. All market functionaries like itinerant merchants, petty traders, commission agents, brokers etc., are licenced. The weighment and brokerage charges are fixed at reasonable rates. The jurisdiction of the Malabar Market Committee extends to this revenue districts of Cannanore, Calicut, Malappuram and Palghat and part of Trichur. The functioning of the existing few regulated markets in the State leaves much to be desired. The activities in these markets have become diluted and there are no proper arrangements for implementing the provisions of the Market Act. Yet the conditions are better than those during the pre-regulation period. A constant complaint of the traders in the regulated markets is that they have to pay, much higher prices and are subjected to several conditions which make them difficult to compete with traders buying from unregulated markets in other parts of the State.

Malabar Market Committee

There was considerable opposition from the trading community when the Malabar Market Committee was first constituted in 1950. The Committee was able to withstand the opposition and convince the growers and traders of the advantages of the system of regulated markets. The Committee also undertook to educate the growers and the market functionaries about the benefits of regulated markets. Under the elected managements the Committee was functioning well till the creation of the State of Kerala in 1956 when the lack of proper market legislation relating to the Travancore-Cochin area began to be felt. Since then the State Government have been thinking in terms of introducing a market bill applicable to the entire state. Today the income of the Malabar Market Committee his fallen sharply and it finds it difficult to provide the various amenities in the market under its control. Since 1959 the functions of the Malabar Market Committee are being performed by the District Collector, Calicut, as the Government decided that until a new unified act for the whole state of Kerala is enacted the district collector may continue to perform the functions of the Committee. Kerala's progress towards the evolution of an improved marketing system has thus been very slow indeed. With its surplus commercial crops, livestock and animal husbandry products Kerala could not yet enact a comprehensive marketing legislation.

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*Market Analyst and Joint Director, respectively of State Planning Board, Trivandrum

Marketing of Agricultural Produce

A Legislative Committee (Sankaranarayanan Committee) has recommended to the State Government a scheme for setting up regulated markets in respect of major commodities produced in Kerala. In its report the Committee has arrived at the definite conclusion that regulation of markets in Kerala is an immediate necessity for orderly marketing of agricultural produce. Under the committee's regulated market scheme all marketed produce of a notified commodity must pass through a regulated market where the produce is scientifically graded and auctioned so that the farmer gets fair price with the minimum of deductions.

To start with, commodities such as rubber, pepper, coconut, copra and arecanut may be brought under the purview of the regulated market system in Kerala. In the case of rubber the major share of the product is grown and marketed in the Kottayam and Idukki districts. For the purpose of sale of rubber these districts can be declared as notified areas under the regulated market scheme. In the case of pepper, regulated markets could be built around the important trading centres like Cochin and Alleppey in the Southern region of Kerala and Calicut, Tellicherry and Ballappattam in the Northern region. For crops like pepper and rubber the total trade involved is quite substantial and spread throughout the State and these crops are at present marketed through traditional and unorganised marketing channels. In view of the importance of commercial crops to the economy of Kerala a systematically organised marketing set up may be regarded as quite essential from the point of view of minimising price fluctuations and assuming stable prices to the growers.

Streamlining Cooperative Marketing Structure

For the successful working of regulated markets the cooperative marketing structure in the State has to be revitalised and streamlined. It would be necessary to bring the small farmers within the fold of cooperative marketing societies. The societies themselves will have to be provided with adequate funds to make necessary pre-harvest advances to the small growers. The extended network of co-operative marketing societies is a very essential adjunct to the regulated market scheme. In fact the two complement each other ideally. But the present working of the co-operative marketing scheme in the State leaves much to be desired. It covers only about 10 per cent of the total trade transactions in agricultural produce. The value of the total marketable surplus of agricultural commodities in Kerala (excluding paddy) may be placed between Rs. 500 and Rs. 600 crores. Thus it can be seen only a small fraction of the total trade is at present handled by marketing co-operatives.

For the organisation of regulated markets it is essential to launch a preliminary survey to identify the producing and marketing centres in respect of important commodities so that these centres could be declared notified areas for the respective commodities. In Kerala, where some of the commodities are grown practically throughout the State, it is not necessary that a commodity sale should be covered 100 per cent by the regulated market mechanism. It would be sufficient to cover the area of operation effectively. Thus the regulated markets in different regions in the State could be oriented towards commodities whose production and sale are concentrated in those regions. □

Military Aviation in India

(*Continued from Page 9*)

make up their minds. What is even more important is to retain them in service after they have completed their initial contract of 15 or 21 years. In fact, many of them want to leave for greener pastures with more settled life when they are the most experienced and are needed the most by the Air Force. The Air Force can ill-afford to let such trained personnel leave and must, therefore, look into and remedy the causes which make them leave the Service. Training is costly, but experience is invaluable. Therefore, the longer they stay, the better for the Service.

Our Own Aircraft

Now, a word about the production of aircraft and equipment in the country. During the last 30 years or so, we have been able to establish extensive manufacturing capacity. We have produced light and trainer aircraft and we have also produced a fighter aircraft. We have manufactured a number of aircrafts and such allied equipment under licence from various countries. I feel that we will have to produce indigenously an aircraft of a really high quality. This has not been possible due to weakness in our design capability. To train in such designing is a slow process but we have not made much progress in this sphere during the last 30 years. The sooner we pay attention to this aspect of our aircraft industry, the better for the country. That is the only way to reduce further dependence on foreign sources for modern aircraft, missiles, radar and other associated equipment. Really speaking, unless we design and produce most of our aircraft, missiles and radar, we cannot consider ourselves entirely free of foreign pressures.

The role of an Air Force is becoming more important as no worthwhile battle on land can be fought successfully without its participating. If nothing else, the Air Force has to ensure that there is no interference from the air in ground operations; that means creating a favourable air situation for our ground forces to fight. All steps should, therefore, be taken to keep our Air Force modern and operationally trained to ensure its effective contribution towards the common defence of the country.

(Courtesy : AIR)

ICF—built coaches for Calcutta Metro.

ICF Coaches for Calcutta Metro

I. Esakky*

THE first lot of metro coaches built by the Integral Coach Factory at Perambur, Madras has been despatched from Madras to Calcutta where India's first underground Rapid Transit System is taking shape. The section taken up for execution now is from Dum Dum to Tollyganj, with a double track railway line covering a distance of about 16.43 Kms. It will have 17 stations, the average interstation distance being 1.02 km. Eight-car trains will run initially at two-minute intervals but it is hoped to improve the frequency later to 90 seconds.

The Metropolitan Transport Project, Calcutta, has placed an order on ICF for the design and manufacture of 144 coaches required for this section. The original thinking was to go in for foreign collaboration for this new venture of designing and manufacture of the Metro Coaches. But the Railway Ministry decided to entrust this challenging task of designing and manufacturing the metro coaches to ICF, which has varied experience in the construction of over 70 different types of coaches not only for the Indian Railways but also for export markets.

Prototype Trains

Of the 144 coaches on order, two trains, each consisting of 8 coaches, have been programmed to be turned out as prototype trains. They will run in a test section being got ready between Dum Dum and Belgachia, a distance of 1.5 Km.

The first prototype train has electric traction equipment supplied by Bharat Heavy Electricals Limited, Bhopal and the other train will have equipment supplied by the New Government Electric Factory (NGEF) Bangalore. Equipment for the remaining 16 trains has also been ordered, divided equally between BHEL, Bhopal and NGEF, Bangalore. While the prototype trains will have some equipment imported from abroad the series production coaches will have substantially indigenous equipment. The Metro coaches will be different in many respects from conventional electric multiple unit coaches of the suburban trains. Each coach will consist of 6 motor coaches and two trailers, with driving cabs at both ends. Each coach is 19.5 m. long and 2.74 m. wide, with a capacity of about 300 passengers. Maximum speed of the train will be 80 kms per hour.

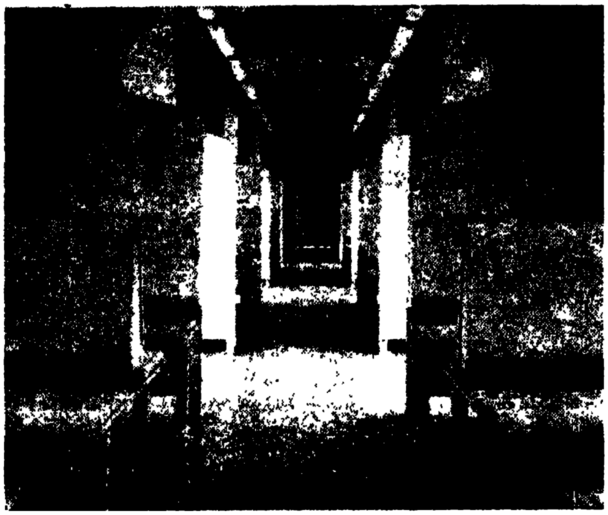
The coach is fully vestibuled. In view of the very restricted space available in the tunnel through which the trains will move, automatic door closing and opening devices have been provided on these trains. Four doors of double leaf type are provided for entry and exit of passengers, on each side of the coach. The doors are electro-pneumatically operated and give a maximum clearance of 1.2 m. The opening and closing of door is normally controlled by the guard. In case of emergency the doors can be opened by pulling the doors apart. However, once the doors are fully closed and locked push back is not possible. The control circuit is so designed that unless all doors of the train are closed, the train cannot be started.

Our Sr. Correspondent, Madras

Safety Measures

For the very high standard of safety required for underground operation, Automatic Train Protection feature will be incorporated which will automatically apply the brakes, should the driver fail to control his train within the speed limits permissible. Features are also incorporated for automatic operation of the train with the driver exercising a supervisory function. A public address system is provided on trains to announce directly to passengers over the system. A dozen special-type fans in each coach will circulate cool and fresh air from the subway under slight pressure to ensure reasonably comfortable conditions inside the coaches. Special type of signalling system will indicate the track position ahead in the cab itself with an automatic feature to apply breakes if the driver fails to observe the speed signals.

With all these sophistications built-in, the design and manufacture of these coaches to a very high standard of reliability and safety is a major task. This is particularly so, when this is attempted to be done in this country for the first time without any technical collaboration. It is confidently hoped that trial runs due to start in the next few weeks will be successful, enabling ICF to take up production of series coaches on schedule. ☐



Metro Coach—Interior

Industrial Wax from Sugarcane

WITH the gradual depletion of the world's fossil fuel reserves, many often overlooked by-products of the petroleum industry are likely to be threatened as much as motor fuels. Among these are paraffin wax and micro-crystalline wax, both widely used for various industrial purposes.

In the search for a suitable substitute available from renewable resources, scientists are turning their attention to sugarcane wax as a substance showing considerable promise. Sugarcane is grown abundantly in most tropical countries. Thin layers of wax are present on the rind, particularly at the internodes. The amount of wax available on any plant depends on a number of factors, such as the variety being grown and agro-climatic conditions, but it is estimated that on an average it forms about 0.12 per cent of the weight of the cane.

However, when sugarcane is crushed in conventional sugar milling plants, more than 50 per cent of the wax contained on the rind finds its way into bagesse, which is subsequently burnt in the boilers as fuel. The remaining portion of the wax finds its way into the sugarcane juice. Since the wax is insoluble, it precipitates, accumulating in the filter cake where it may comprise from 4 to 20 per cent of the total weight of the cake.

In India, one sugar milling plant is producing about 150 kg of crude wax per day, which is being used, in some cases after refining, in the manufacture of carbon and stencil papers and in various types of polishes.

(CERES)

20 Per Cent Increase in Cloned Palm Yield

BRITISH AND FRENCH scientists have found a way of producing "test tube" palm trees that could eventually result in dramatic increases in yields of palm oil, coconuts and even dates. They have discovered a technique for sprouting palms from tissue taken directly from the leaves and roots of palm trees. With oil palms the cloned trees are expected to produce increased yields of at least 10 per cent. The new growing technique bypasses seeds entirely. Pieces of tissue are taken from leaves and roots of a single plant. These are placed in a culture medium and developed into a hard mass of cells, called a callus, which with the aid of nutrients like salts and hormones are grown into a seedling.

The plantlets are slowly weaned off liquid nutrients into pots of soil in a nursery before being transferred to a plantation. The plants carry all the genetic traits of their parent. Thus, a high-yielding palm can be regenerated en massse without any fear of losing quality through cross-fertilization with lower yielding plants.

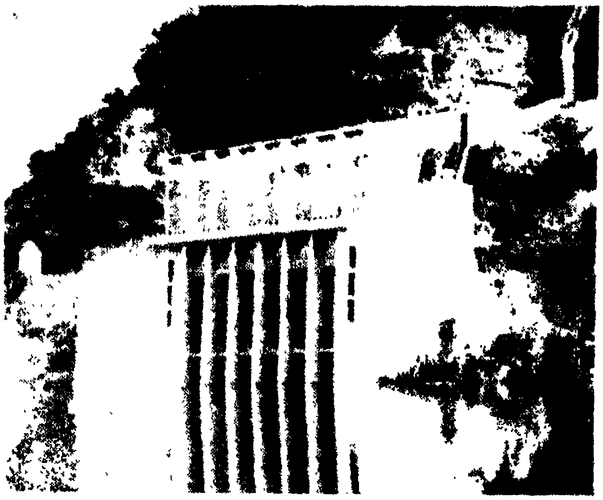
(CERES)

Plan your Family

For Happy Life

Their Long Wait for Water is Over

Suraj Saraf*


Tawi canal head-works

A large flat area of about 60 miles between Jammu city and Lakhanpur on both sides of the Jammu-Pathankot highway has been known as Kandi where nothing but thorny bushes and hardy crops grow. The drinking water had to be brought from ponds which went dry during summer. To improve the lot of the people of Kandi area it was decided to have two canals viz one from river Tawi from near Jammu city and the other from river Ravi. Both were to be joined by a 6-km link channel at their tails.

Levelling land in the Tawi Canal command area in progress

The whole scheme is known as Ravi-Tawi Complex. The work was first started on the Tawi canal. By now it has entailed a total expenditure of Rs. 7.11 crores. The main channel has a length of 28.8 kms. It has a lift of 108 feet from the river Tawi bed and a carrying capacity of 300 cusecs of water. It has created a total irrigation potential of 12,880 hectares benefiting about 12,000 farmers. A separate organisation has been set up for land levelling to avoid flash floods.

The work on Ravi canal has also been going on at good speed. The water of river Ujh and river Basantav that previously went waste are also being utilised by building barrages.

The canal is to have a total length of 76 kms. and is to take off from the right bank of river Ravi at Shahpur Kandi Barrage (to be constructed by the Punjab Government). Provision has been kept for some lift irrigation schemes on the left of the canal for areas located at higher reaches. The entire canal and the distribution system will be lined to prevent seepage of about 30 per cent water.

The newly irirgated area will yield additional amount of foodgrains and fodder which can trigger off prosperity for the people of the area. ☐

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*Journalist, Jammu.

Wider Use of Solar Energy

As a part of the programme to promote the use of solar energy, Government is supporting the development and evaluation of technology for solar pumping. Central Electronics Limited (CEL) has developed a 1|3rd H. P. pump which can deliver 30,000 to 40,000 litres of water per day under bright sunshine conditions. The electricity needed to operate the pump is generated by photovoltaic panels made by CEL. A few such pumps have been installed for demonstration and evaluation. A pre-commercial pilot-plant to produce photovoltaic modules at an annual rate of 1 MW by 1985 is to be set up by CEL during the Sixth Plan. About 75-80 per cent of this production is likely to be used for irrigation or drinking water supply. The Commission for Additional Sources of Energy is also supporting work on the development of a solar thermal water pump.

A Review Article

Bank Aid to Farmers

Navin Chandra Joshi

BANK OF BARODA has brought out four publications* each containing about 50 pages during the last three years. The project Monitoring and Evaluation Cell of the Priority Sectors Department in the Bank deserves congratulation for undertaking the indepth studies on methodical lines.

The Bank of Baroda has been providing loan facilities for various agricultural development schemes with the objective of raising farm productivity and output. The findings of the study of minor irrigation scheme in Masuda development block have established that the investment in providing irrigation facilities in the area has paved way for forming the agrarian economy. While the overall cropping intensity increased by 34.34 per cent from 949.00 acres to 1,274.9 acres, the rabi cropping intensity recorded a significant rise of 64.83 per cent from 314.8 acres to 518.9 acres. The net income per acre of cropped area has also increased during the post-investment period. One conclusion that emerges is that in the years to come, with the exposure to better techniques of irrigation farming system, the farmers will have to increase their investment on seeds fertilisers, pesticides, labour and farm equipment.

The study also throws up the fact that output would have shown considerable improvement had some of the constraints been overcome. The factors which have limited the increase in output are low yield of water in the wells which were not sufficient to irrigate rabi crops, non-availability of technical guidance, improper on-farm development works like field channels, levelling/shaping of land and bunding, etc. The consolating feature of loan disbursement has been that the productivity of beneficiary farmers has been more than that of non-beneficiaries.

In the survey of composite minor irrigation scheme of Mysore villages, the results arrived at were almost the same. Investment made in the creation of irrigation facilities has brought changes in the investment pattern on the use of inputs and employment of labour for cultivation of various crops. The study gives some important suggestions and recommends that the field staff of the Bank should visit villages along with government officials so that the Bank may be able to dispose of the loan applications, disburse the loan amount and supervise the end-use of credit as speedily as possible at the village level. It is felt that small and medium farmers can, with proper guidance, increase their area under irrigation by 20 per cent Farmers also need to be guided for judicious use of the costly inputs so that they optimise the rate of return on investment of inputs.

The study on tribal farm development scheme of Bansda evaluates the extent to which the tribals have benefitted in terms of farm-output productivity, employment opportunities and net income. The Bank had formulated a comprehensive tribal farm development scheme with the support of Sadguru Agricultural Service Society, Bansda, with a view to create common assets and utilise resources like land, water and livestock for the betterment of their socio-economic conditions. It was a novel approach in as much as the scheme involved several facilities like loans for lift irrigation system, farm godown, tractor unit, crop-cultivation, land-development, bullocks, etc.

There has been an increase in income of small and other farmers as a result of the project. The employment potential per hectare also increased by 28 days in case of paddy cultivation and by 38 days in case of wheat cultivation. The study suggests that farmers should introduce changes in favour of remunerative cropping including cultivation of vegetables, fruit trees, etc. by adopting multi-cropping system. Further, all farm families should be brought under individual farm planning and farm budgeting programme.

The fourth publication in this review is on integrated dairy development programme in Padra Taluka of Baroda District. With the active involvement of the MFAL agency, the Bank of Baroda formulated the programme. The Bank, being a lead bank in the district, initiated this study which has shown some adverse features of the rural economy. For example, the area had the highest concentration of agricultural labourers (34.56 per cent) and marginal farmers (52.1 per cent). The finance provided by the Bank has made an impressive impact in terms of milk production and income accrued to the borrowers as well as the turnover of the dairy cooperatives.

The study has revealed the need for providing continuous training to the beneficiaries in the areas of breeding, feeding and management aspects of the cattle. Also, concentrates should be provided as per the standard norms in order to maintain the level of milk production. Primary milk producers' cooperatives should be guided properly for conducting fat test on the basis of which the price of milk is decided.

One general feeling in the matter of bank credit has been that there is no follow-up in order to assess if the credit has been utilised for the purpose for which it is granted and also to find out the impaet of such credit. This kind of feeling has been genuine, for the banks have not been keenly watching the end-use of loans granted by them and they generally think their work is over once the rigours of credit sanction are applied and credit doled out, whatever may happen to it later on. This kind of attitude has surely resulted in misuse of loans and their non-recovery by banks. Huge overdues of credit, particularly in the priority sector, are mainly due to the apathy of banks in ensuring the right use at the right time.

Studies like these help in locating the strong and weak points of credit planning by banks. They also fill in the missing link of follow-up practices on the part of banks. One only wishes that all commercial banks follow the example of Bank of Baroda in doing such exercises for their own benefit and for the benefit of the government in its decision-making process.

***Evaluation Study of Minor Irrigation Scheme, Masuda, (Ajmer District). Composite Minor Irrigation Scheme, Mysore, (Mysore District). Evaluation Study of Comprehensive Tribal Farm Development Scheme, Bansda (Bulsar District). Evaluation study of Integrated Dairy Development Programme in 51 Villages of Padra Taluka (Baroda District). Published by Bank of Baroda, Central office, Ballard Pier, Bombay 400038. Price not mentioned.**

Books

Public Enterprises And Parliament

Accountability of Public Enterprises to Parliament By D. N. Gadhok, Sterling Publishers Pvt. Ltd, pp 147 Rs. 45.

THE book is basically a factual narration of the conception, constitution and performance of Parliamentary Committee on Public Undertakings (COPU). It includes a brief review of the committee's reports and the impact these have made on the functioning of public sector enterprises. And finally the author proves his point, "for thirteen years the committee has conducted inquiries into the working of public enterprises, but neither their autonomy nor their day-to-day working has been affected or interfered with."

Mercifully, the book covers the COPU reports till the end of 1976. Although it saw the light of the day in 1980 and eleven reports of the Sixth Lok Sabha had been presented to Lok Sabha by April 1978 it is not known why the author took no notice of any of these reports. If he had, perhaps he would not have been so sure of the conclusions he has drawn.

COPU came into existence as an inspiration from the British precedent of setting up a separate committee of Parliament for their nationalised industries. As in Britain so in India, however, opinion was divided from the beginning if such a committee would keep the autonomy of public enterprises inviolate. Opposing the appointment of committee in the House of Commons Lord Morrison feared that it might create among publicly-owned industries "a rather redtapish, unadventurous and conventionally civil service frame of mind." In India when the proposal was first mooted by a private member in December 1953, the then Finance Minister enquired, "Is it not better to enable the executive to manage these and then to call the executive to account in the way in which Parliament always calls the executive to account ?"

The ding-dong battle between the protagonists and opponents of the committee went on for over a decade. Eventually when the committee was constituted in May 1964, among other functions it was asked "to examine, in the context of the autonomy and efficiency of the public undertakings, whether the affairs of the public undertakings are being managed in accordance with sound business principles and prudent commercial practices."

But the recommendations of the committee on the question of autonomy of public sector and the comments of the ministries thereon are couched in such officialese that it leaves the entire issue blissfully vague. In the first place the committee has examined such detailed matters as costing system, pricing policy, material management and inventory control. Secondly, it would like the undertakings to submit periodical reports "on all important matters" which "should not be considered as interference in the day-to-day administration." Thirdly, while it would not like the ministry-in-charge "to meddle with the autonomous field of the enterprises, it has also not liked that the autonomy enjoyed by an undertaking should be construed to mean that the management was free to make commitments without regard to financial propriety and procedural requirements." Reviewing the recommendation Bureau of Public Enterprises informed all ministries in a memorandum, "It has been decided that a beginning can be made for effective shouldering of government responsibility in the running of public enterprises . . ." It is indeed a tight-rope walk for the enterprises to manage their affairs "in accordance with sound business principles" and also follow the recommendations of the committee and government.

Over 12 years the committee prepared 94 reports (91 mentioned on page 19) about 52 undertakings. It made a total of 110 recommendations of which 77, or 70 per cent were accepted by government. The book abounds in satistical data like memoranda received from private parties alongwith pages of each, undertakings visited by the committee each year, number of meetings held by various study groups, and so on. Such obvious detaill as recording of the minutes, going through the replies and placing them before the Chairman for approval etc. have been assiduously explained.

The author points out that government has endorsed most of the committee's recommendations and the managements of public undertakings have "welcomed and appreciated" the work of the committee. After all, who can dare openly criticise a committee of Parliament ?

Bayweo Sahai

Child Development

Children in India—Critical Issues in Human Development, Edited by Alfred de Souza, Manohar Publications, New Delhi ; Pages 262.

In many ways India is ahead of many other countries in making a systematic approach in the field of child development. The National Policy for Children and the National Children's Board are but two instances. The International Year of the Child 1979 provided a challenging opportunity to the country to accelerate the activity for a quicker achievement of the national objective. As programmes for children's welfare are implemented in the field, academicians and research scholars have to keep up the thinking processes in order to throw fresh light to enable policy makers and project administrators to redraw the schemes in a more purposeful and result-oriented manner. It is in this context that one welcomes a volume like this which contains scholarly and perceptive essays written by experts in various departments of child development.

Grouped under four broad sections.—Critical Perspectives on the Underprivileged child ; Child Health

Care, Health Knowledge and Nutrition ; Aspects of Socialisation ; Alternative Forms of Child Care—the collection offers 12 essays of compmelling research value. The striking point about the contributions is uniform avoidance of cliches and platitudes and a transparent sincerity in approach to assess the validity of the schemes as well as the quality of their implementation. These ideas should provoke all concerned to attempt rethinking in order to accomplish the task expeditiously.

As the Director of IYC Secretariat John Grun has said in his foreword, this volume would 'lay a sound basis for true development' of the child.

V. Patanjali

Transport System in Assam

Transport System and Economic Development in Assam by Dr. S. B. Medhi ; . . published by Publication Board, Assam; pp. 424, Appendices and Bibliography ; price Rs. 45.

THE painstaking scholarship that has gone into the work, which earned the writer a Doctorate Degree, is commendable enough. The book transcends mere academic interest and continues to be drawn upon for planning and economic break-through for the State of Assam in particular and for an economic take off in respect of the country in general. Its coverage is fairly wide. Divided into as many as eleven chapters, the book provides a perspective of economic developmen in Assam *vis-a-vis* modes of transport from 1947 to 1971. Since Arunachal, Manipur, Mizoram and Meghalaya once formed part of Assam, the writer has very rightly assessed the impact of the evolution of transport facilities in these regions. The first chapter sets forth a historical background touching on development of railway facilities and economic growth. The chapters that follow provide a large canvas—a comparative study of modes of transport, development of railways, impact of railways on agriculture and industries, impact on distribution and prices, influence of railways on population and income, and a host of other topics. According to the writer, the development of railways has led to an increase in production potentiality of the state economy. He points out that in recent decades investment in railways is much more than that on other modes of transport and the total traffic handled by the railways seems to be more than that of other modes of transport available. He proceeds to opine : '. . . . . .In opening up the regions of Assam the railways generally yielded social returns far in excess of profits' accruing to the Railways. He has, however, left off the point without further elaboration.

All in all, the book is well-written and elegantly produced. The matter projected is overweighted with the treatment of railways to such an extent that the alternative and ancillary modes of transport seem to have receded and outfocussed. The import of the construction of Brahmaputra Bridge should have been assessed; besides, two appendices, one on the Methodology used and the other on topography of Assam, should have also been included. Despite all this, the writer's economic foresight and insight are significantly worthy of consideration. The book is moderately priced, and would have a wide readership.

T. C. Rastogi

Supply Response of Crops

Aggregate Supply Response of Crops in a Developing Region By Dr. S. L. Bapna, Published by Sultan Chand & Sons, 4792/23, Daryaganj, New Delhi-110002, Price Rs. 45.00

THE agricultural development in India is the result of rapid evolution of policies which have responded in a paragmatic manner to failures of the past and rising needs of the future. In the present circumstances of farmers' agitation, the problem chosen by Dr. S. L. Bapna is an important one—how large a role does price policy play in achieving agricultural production increases ? In the agricultural sector, policy appears to be adjusting itself to findings of research in agricultural economics.

Dr. S. L. Bapna has tried to verify the once widely held belief of the perverse response of Indian farmers to prices of farm products in the country. However, the scope of this study is restricted to only Ajmer district in Rajasthan and refers to the years from 1956-57 to 1976-77. The period since 1966-67 has been termed as a period of relatively modern technology used in agriculture.

The study provides strong evidence that the aggregate supply elasticity of total agricultural production is positive and this should be enough to cast off the notion of widely held belief of perversity of farmers in supply response. However, the supply elasticity of aggregate production in changing agriculture (modern agriculture) is more than in traditional agriculture. Also the supply elasticity of the aggregate yield was positive and significant. The findings of this study indicate that price policy can be an effective device in increasing aggregate production. These findings can be used for input-price policy. Further results predict that area supply response is low and therefore, for increasing agricultural production intensive farming is inevitable.

Though the study is a poineer in the agricultural economics, further study covering more agriculturally developed districts of different States is required to evolve a national policy and it will be very useful particularly to the Agricultural Prices Commission. The author deserves all-out praise for this study, but the price of the book is prohibitive.

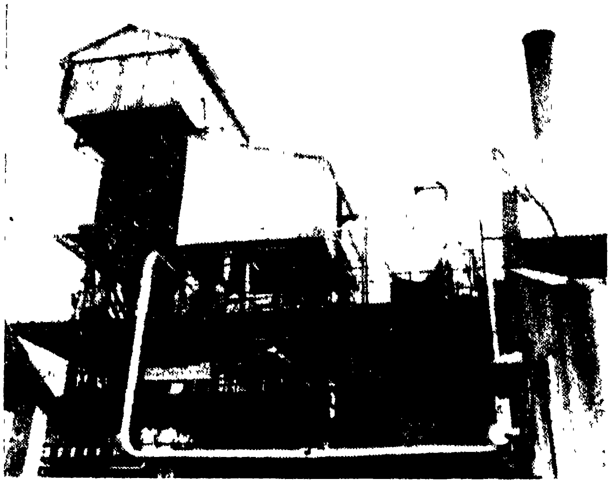
Qamaruddin Khan

Radio Beacon at Periyar Point

THE Periyar Point Radio Beacon went into operation on September 10, 1981. It provides all wheather, all-day navigational assistance to ships of all kinds operating within a 400 Km radius of the Laccaaive—Mangalore—Cochin sector. Installed at Azhikode, in Trichur District of Kerala at a cost of Rs 12 lakhs the Beacon uses Nantel Transmitter NBM 2000 and has a power output of 500 watts.

It is the second in a series of three such Beacons. The first one at Suratkal, near Mangalore is already functioning . The third one in Minicoy island is being set up. By intercepting the signals from any two beacons, a ship approaching the sector, will be able to locate itself with pin point accuracy

The Navigational Beacon at Periyar Point



A view of the Fludised Bed Combustion Boiler fabricated by the BHEL, Tiruchirapalli.

Fluidised Bed Combustion Boiler of BHEL

Bharat Heavy Electricals Ltd., is the first in India to develop the Fluidised Bed Combustion Boiler at its Tiruchirapalli unit. The Boiler was successfully lighted up at M/s. Tiruchi Distilleries and Chemicals Ltd., Tiruchi. The Fluidised Bed Combustion Boiler is a versatile equipment to burn all grades of coal and the heat transfer rate at the Bed is high. Further, ash let out is less corrosive and the rate of emission of gaseous pollutants is very low. In addition, there are other advantages like compactness, economy in operation etc.

Gandhian Plan for Wardha District

THE Committee formed by the Planning Commission to prepare a plan designed to develop Wardha district on Gandhian lines has decided to set up a sub-committee under Dr. M. S. Swaminathan, Member, Planning commission to formulate a time-bound plan for the purpose.

The proposed Plan for Wardha district will lay stress on self-reliance and alleviation of poverty by providing gainful employment to landless in the district. Development of infrastructure will also receive attention. □

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First Public Sector Hotel Celebrates Silver Jubilee

The 25th anniversary of the founding of the Ashok Hotel in New Delhi was celebrated last month. This brainchild of Jawaharlal Nehru is perched on a spur of a commanding elevation in the Capital's diplomatic enclave. Its masceive pink structure bends the finest features of medieval and modern architectures. In the last quarter of a century it has become as much an attraction for visitors from abroad as any other place of special tourist interest. Its charm has enchanted the royalty and leaders of revlutionary regimes, the busiest of businessment and those who jet around the world just for leisure.

Built to accommodate delegates to the first ever session of UNESCO held out side Europe in 1956, the Ashok Hotel has grown to be the largest hotel through two phases of exparsion which coincided with the successive conferences of UNCTAD and UNIDO. It has 600 rooms and a convention hall with a seating capacity of 2 500. Each of its rooms is designed to excel the highest international standards.

Every international conference held in New Delhi during the last 25 years found this hotel responding to the requirements of accommodation and cuisines. Its banquet hall has time and again echoed the calls for peace and friendship from every visiting head of state or government. They included great men like Chou En-lai, Dalai Lama, Soekarno, Dwight Eisenhower, and Jimmy Carter

A suite in Ashok Hotel

Ashok Hotel—a view

The exotic cuisines in its restaurants, with their uncompromising concern for good food and remarkable geographic impartiality, could prompt even the most diet conscious guest to be a little over-indulgent. The imaginative menu in Rotisserie, the main dining room of the hotel, is the favourite of the discriminating guests with an eye for art and sculpture. Its panels and puppets, antiques and art pieces provide the typical Indian environment in which one could have gracious dining.

It has become one of the cultural centres in the capital. All great masters of the performing arts have been presented to the most attentive audience in this hotel. It has been reverberating with the steps of artistes like Yamini Krishnamurthy and melody of Yahudi Manuhini. It is the first hotel of international standard to present such Indian entertainments.

Ashok Hotel belongs to the people of India. It is the nucleus around which has grown a sound infrastructure for tourism. It has contributed to the generation of employment as also to other spin-off effects which benefit every segment of tourist industry, It is managed by the Indian Tourism Development Corporation, a Government of India Undertaking, which is pledged to treat every visitor as an honoured guest. In the last 25 years it has indeed assured for itself and the entire public sector efforts in tourism an honoured place in the history of India's economic development □

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Why is Rajasthan Backward ?

The Prime Minister Smt Indira Gandhi addressing the National Children's Board Meeting held recently in New Delhi. To her right side are Smt. Sheila Kaul, Minister of State for Education and Social Welfare and Shri Venkataraman, Minister of Finance.

Prime Minister Calls for Children's Medical Check-up

The Prime Minister, Smt Indira Gandhi, has stressed the need for a regular medical check-up of children to detect and treat illnesses and prevent cases of blindness and leprosy. Presiding over the meeting of the National Children's Board in New Delhi she referred to child labour and said taking children away from work was no solution. That might worsen their situation. What was needed was to provide some schooling to them in the work area to make them literate and to make it possible for them to upgrade their skills.

Childhood Disability

NATIONAL IYDP Committees should be converted into National Commissions for disability, prevention and rehabilitation to plan and introduce measures against childhood disability in the coming years. This was suggested in a four-day Asian Meeting on "Childhood Disability—Family and Community Roles" which concluded in New Delhi recently. It was universally recognised that the programmes against childhood disability should not lead to the emergence of any other disability. Publications including brochures and leaflets giving information on childhood disability should be produced in various languages for the use of trainees ond instructors for organising training courses. The meeting also laid emphasis on taking preventive measures to combat communicable diseases, provisions of sanitation and environmental hygiene, greater universalisation, timely immunization and providing basic medical services so as to reach the disabled children.

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Yojana seeks to carry the message of the Plan but is not restricted to expressing the official point of view.

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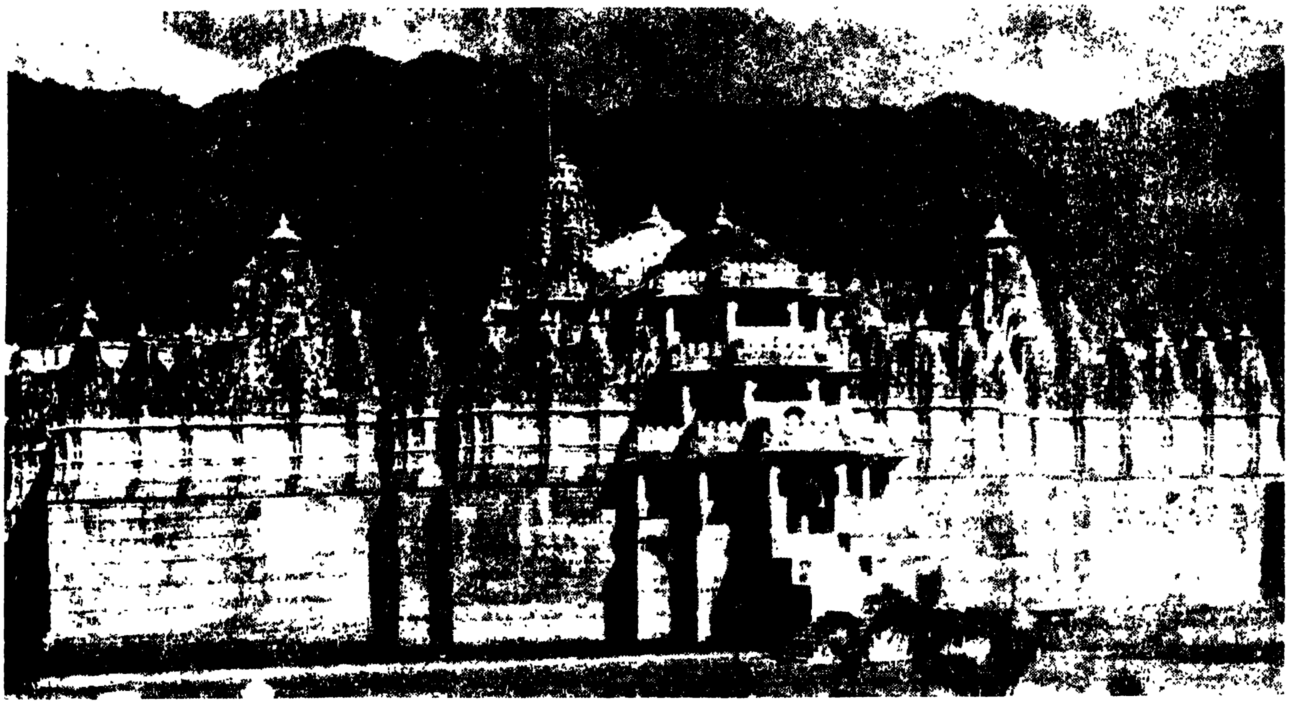
Editorial

Power Sector's Poor Performance

AT a recent Conference of State Power Ministers held in New Delhi, power sector's dismal performance in capacity addition was discussed at length and the Union Energy Minister, Shri Ghani Khan Chaudhury admitted quite candidly that the target for new power generating capacity to be set up in 1981-82 was not likely to be fulfilled. Against the estimated target of 3212 MW, the additional capacity to be installed this year is not likely to exceed 2500 MW. Thus the power sector's performance during the first two years of the Sixth Plan would fall far short of expectations. At the current rate of growth, it is doubtful if the target of 20,000 MW in the Sixth Plan could be achieved at all. Since delays in the commissioning of power projects were not new in the past, the Government had devised a series of remedial measures when the ambitious plan to increase the power production in the Sixth Plan was finalised a couple of years ago. Various reasons have been given for this dismal record in both power generation and project implementation. BHEL and Instrumentation Limited, Kota (ILK) have been squarely blamed for the delay in the supply of equipment. As pointed out by the Rajadhyaksha Committee on power, any general conclusion that all project delays have been on account of late delivery by BHEL cannot be supported. It has been argued from the industry side that inadequate power supply to equipment manufacturers like BHEL as one of the causes of delay. In the face of an acute overall shortage, it is unlikely that the States make sufficient power available to meet the full needs of equipment manufacturers. The Rajadhyaksha Committee has recommended that the import of four 500 MW sets from BHEL collaborators may be desirable to avoid problems of spares and to give BHEL some breathing time. However, large scale imports of power equipment should not be permitted for all times and the emphasis should be more on self-reliance. The State electricity boards are also blamed for the poor performance of the power sector. These boards are in a total mess and their cumulative losses have gone upto Rs. 770 crores and they owe Rs. 200 crores to BHEL alone. In fact the Conference suggested several measures like timely completion of projects, improved capacity utilisation, reduction in transmission and distribution losses, control on the manpower employed and better inventory management to help improving the overall internal resources generation of the boards. Shri Mohd. Fazal Member, Planning Commission, who also addressed the Conference, asked the State Energy Ministers to have a fresh look on their actual manpower requirements. He made a number of valuable suggestions for better project management etc. It is worthwhile to implement as many recommendations of the Rajadhyaksha Committee as possible.

Most of the power projects now undertaken are mammoth ones. Such large projects are always subject to availability of large funds and of scientific managements. Sometime ago the Union Energy Ministry had set up an expert committee to examine the feasibility of adopting micro-hydel schemes in India. It is not known whether the committee has submitted any report at all. It is worthwhile taking up micro-hydel schemes in different parts of the country. □



Jain Temple at Ranakpur—An unparalleled specimen of Architecture.

Cover Story

Why is Rajasthan Backward ?

Milap Chand Dandia*

RAJASTHAN will be celebrating its 32nd birth anniversary on the coming March 31 (the State was formed by amalgamation of twenty two princely states on that day in the year 1949) but it has yet to emerge out of the penumbra of backwardness.

The State which was once known for its valour and chivalry has now become synonymous with drought and famine. Though Rajasthan, with 10.43 per cent of country's total geographical area, occupies second place area-wise among Indian States, it stands at the last in the matter of development. Only the tiny States like Sikkim, Meghalaya and Tripura rank below it.

During the last thirty years a sum of Rs. 2300 crores has been spent on planned development of Rajasthan. Despite this the State continues to be at the mercy of the rain god for a good harvest. Timely monsoon brings cheers while the lack of it spells doom. Mass exodus of men and cattle in search of new pastures has become an annual feature. More than half of the State's population lives below the poverty line.

Many a time people express wonder as to why Rajasthan is still backward while its own sons have made significant contribution in the development and propserity of many farflung areas of the country. When the far-off States like West Bengal and Maharashtra have occupied the front row among industrially developed States of the country on the strength of the labour and skill of 'Marwaris', why is their own native land reeling under backwardness ? One has not to go too far to seek the answer.

One-third of the total area of the State is covered by desert. The districts like Jaisalmer, Barmer, Jodhpur, Jalore, Churu, Nagaur, etc., grow only one crop and that too only if there is adequate rain. At places the water table in those districts and some other adjoining parts is as low as 100 metres. The water is brackish and unpotable and that too is not available in all villages. In many villages even the meagre supply of drinking water has to be fetched from places miles sway out of 35,795 villages in the State only one-seventh or say 5483 had a water supply system by the end of year 1980. Thus, roughly 30,000 villages have yet to get water supply system of their own. However, when Rajasthan State was formed, piped water supply existed only in five towns.

In 1951 when planned efforts for development of the State were initiated through launching of First Five Year Plan, irrigation facilities in Rajasthan existed only for an area of 6 lakh hectares. By the end of the year 1979-80 a potential for irrigating

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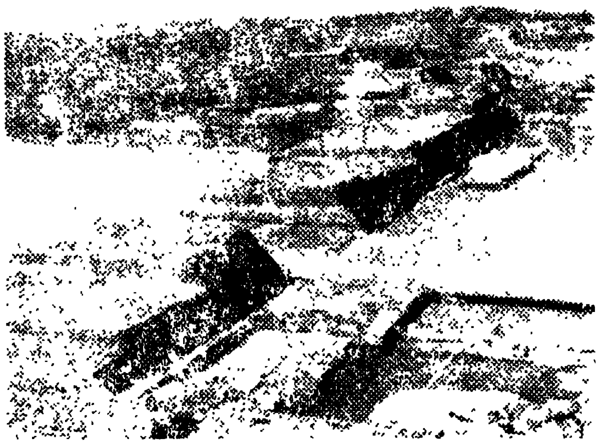
*Correspondent, The Economic Times



Mahi Bajaj Sagar Dam under construction

39.30 lakh hectares had been created. In drought years- and drought has almost become a permanent phenomenon in Rajasthan—this potential shrinks down considerably. Even otherwise the State does not have enough potential for irrigating its entire cultivable land. It is estimated that whereas Rajasthan possesses 13 per cent of the total cultivable land of the country it has only 1.35 per cent of the total surface water potential. Thus Rajasthan has mainly to depend on water resources from outside its territory. This single fact puts the State into a difficult position.

Drought and Famine

For example the Rajasthan Canal which on completion, will irrigate a vast expanse of land covered by sand dunes from Ganganagar to Jaisalmer Passes through Punjab before entering Rajasthan. It is a regular feature that whenever there is paucity of water the Punjab authorities reduce supply in the canal at their own will to the detriment of the farmers of Rajasthan. This year too when Rajasthan is facing drought for fourth consecutive year, the standing crops in Ganganagar and Bikaner, which are irrigated by the waters of Rajasthan Canal, face extinction as even the due share of water is not being released into it. The pace of construction had also to be slowed down for want of adequate and timely supply of essential materials likes cement and coal during the past few years. This is the state of affairs with the project which when completed has the potential of making the country self-sufficient in food grains.

A major part of the State's scarce financial resources is eaten away by famines. An year-wise review for the last fifteen years, from 1967-68 to 1981-82 (which is already in for the worst ever famine) shows that there were only three years when the State was free of famines. Nine years were such when almost entire State was hit by the demon of drought. In another three the drought hit either half or more area of the State. The Table below gives a review of famine conditions in the State. Since the formation of Rajasthan a sum of about Rs. 700 crores has been spent on providing relief to the famine-hit people on the State. With so much expenditure and also launching of special schemes like Drought Prone Area Programme and Desert Development Programme little impact has been witnessed in the direction of conquering the desert and its resultant problems. The people of desert areas still groan under miserable condition.

Famines in Rajasthan

Year	Number of affected		
	Districts	Villages	People (Lakhs)
1967-68	12	2365	15.16
1968-69	26	22799	131.63
1969-70	23	10877	72.84
1970-71	8	503	3.29
1971-72	12	4510	30.00
1972-73	26	18768	140.23
1973-74			
1974-75		20073	148.99
1975-76			
1976-77			
1977-78	18	12251	92.33
1978-79	24	5609	N.A.
1979-80	26	31095	240.62
1980-81	26	21365	167.71

Human Bondage

The slow implementation of family planning programmes has resulted in Rajasthan's total population figure touching 3.4 crore—mark in 1981. The increase over the population figures of 1971 during the decade has been as high as 32.36 per cent. Thus, in the matter of population growth Rajasthan is much ahead of many other States by its ranking at number four from the top. This will naturally vitiate and neutralise whatever little progress in various fields has been achieved.

Morever, about 28 per cent of the State's total population belongs to Scheduled Castes and Scheduled Tribes. This makes the task of development all the

A marvel in marble—Dilwara-Temple at Mt. Abu

The desolate herd of cows in search of fooder and water.

more stupendous. According to the final report on indebtedness among rural households published by the Labour Bureau, Government of India, the percentage of indebted households amongst agricultural labourers increased at the rate of 76.4 per cent to 78.7 per cent against the national average of 60.6 per cent to 66.4 per cent. The incidence of indebtedness amongst SCs and STs in this category of house-holds was registered as high as 82.4 per cent and 83.1 per cent respectively. The survey was conducted to measure the rise or fall of incidence of indebtedness during the decade 1964-65 to 1974-75. The survey says that 80 per cent of the SC and ST households in Rajasthan are under debts. The little efforts made during the year 1975, 1976 and initial months of 1977 to relieve these poor people of exploitation were frustrated with the change of Government and now no one appears to be serious about the amelioration of their lot. Experts indicate that there are about one lakh people in Rajasthan who can be categorised as bonded labour. But the job of relieving them from the clutches of unscrupulous elements is at a standstill after getting 6,000 of them freed from the bondage. The agencies set up to improve the lot of the Scheduled Tribes have turned out to be a source of their exploitation at the cost of public exchequer. Unless a serious effort is made by a band of dedicated workers, the SC and ST of Rajasthan will continue to reel under poverty. This is a major hurdle in the progress of the State. After all the economic condition of the one-third of population is bound to reflect in the overall economic condition of the State.

Cattle and Mineral Wealth

The State is happily placed in the matter of its livestock population. Of late dairy development programme has picked up, specially in the western districts. But the authorities are contented with the activity of collecting and selling of milk alone. No serious effort has been made to gainfully use the milk in the State itself. Manufacturing of milk products can get better returns for the owner of the milch animals but it is sold out in its original form for immediate and lesser returns. The same is the state of affairs regarding sheep and wool. Rajasthan possesses about a crore sheep which supply about 45 per cent of country's total wool production. But the end product of the wool is made elsewhere. During the past few years some woollen spinning mills have been set up but they are quite insufficient. If more mills are set up for spinning and carpet weaving is done on a larger scale the same can prove highly beneficial to the local population.

Similar is the case of the mineral wealth of this State. It has by now been established that Rajasthan has atleast Rs. 8,000 crores worth of buried wealth. Of many minerals this State is the sole possessor. But little has been done to exploit this wealth So far the efforts have been confined to digging and selling the minerals in raw form. Take for example, the rock phosphate deposits in Udaipur district and pyrite deposits at Saladipura in Sikar district. The question of setting up a fertilizer plant based on these two minerals has been hanging fire for the last about one decade. As a result, the rock phosphate is being sold in raw form by the State government. Substantial quantity of mica is sold to States like Bihar. Unless effective steps to turn the raw materials into finished goods in the State itself are taken there can hardly be any progress in real terms.

Weak Infrastructure

As per the index of infrastructural facilities (1976-77), the State ranks 19th among Indian States and is above only Tripura, Meghalaya and Sikkim. The average length of railways per 1,000 sq. kilometres of area in Rajasthan is only 16 kilometres, keeping it at the seventeenth place in the overall national scene. At the end of March, 1976, the average road length in this State per 100 square kilometres of area was 16 kilometres. Again this average puts the State at the last but one rung and much below the national average of 42 kilometres. In the matter of power consumption Rajasthan occupies the

Famine Relief Work under Progress

sixteenth position from the above leaving only six other states below it. The per capita consumption of 83 units of power in Rajasthan is much below the national average of 119 units. The selected industrial indicators such as number of factories, employment, output, income generated etc. computed in the State gives following respective percentages of Rajasthan's share in national cake : 2.3 per cent. 2.3 per cent, 2.2 per cent and 2.3 per cent.

The lack of infrastructural facilities has also been a major bottleneck and is largely responsible for the tardy progress of the State on industrial front.

A survey conducted by the National Council of Applied Economic Research observes that the requirement of cement in northern region comprising Rajasthan, Punjab, Haryana, Himachal Pradesh, Uttar Pradesh and Delhi is likely to reach 13 million tonnes by the year 1988-89. Rajasthan, the survey says, has large deposits of cement grade lime-stone and can, therefore, meet 50 per cent of the northern region's demand for cement. Thus, the State should plan for raising its capacity of cement manufacturing to almost 7 million tonnes by the year 1988-89. But many of the applications for licences for cement units remain uncleared because the existing railway line, specially the Delhi-Ahmedabad line, is saturated and cannot take any further load The NCAER categorically says, "In the absence of conversion of metre gauge into broad gauge railway line by the early part of Seventh Plan period this additional 4 million tonnes capacity of cement may not be possible". Will the Delhi-Ahmedabad line be converted into broad gauge line as recommended by the NCAER survey? The possibilities appear to be nowhere near.

Rajastan has big potential for cement units

Poor Central Investment

It is also true that amongst the various causes of Rajasthan's backwardness one is the very low, rather negligible Central investment in the State. Out of total Rs. 11,451.2 crore Central Government investment in public sector undertakings by March, 1977, Rajasthan's share was a paltry Rs. 227.1 crore. Major portion of this investment, however, has been due to compulsions of nature and not by way of an effort to raise the standard of the State—for instance the two largest public sector undertakings in the State Hindustan Copper Ltd and Hindustan Zinc Ltd.

(*Continued on page* 26)

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Need for an Incomes Policy

I. Satya Sundaram*

MOUNTING INFLATION and increasing income inequalities are two important problems facing Indian planning. The evolution of an appropriate incomes policy will go a long way in controlling inflation and reducing income disparities. In a wider sense, incomes policy means measures to reduce income inequalities, eliminate very low wages or reduce poverty by social welfare legislation. Incomes policy also aims at moderating the rate at which money incomes tend to rise. It is, thus, used as an anti-inflationary device designed to moderate the rate at which prices and costs tend to rise.

An incomes policy is defined by Samuelson as a policy to "hold down the rise in general wages and other money incomes to a rate compatible with productivity advance and stable prices." Incomes policy is no doubt an adjunct to fiscal and monetary policy. But, fiscal monetary policies by themselves will not be effective in controlling cost-push or wage-pull inflation. Sometimes it may not be possible or desirable to reduce indirect taxes and public expenditure though they create inflationary conditions. Curtailment of public expenditure and credit restrictions lead to a fall in employment which is most undesirable under the present conditions. The main aim of an incomes policy is to ensure price stability by influencing individual prices and incomes. The problem is how to hold down costs and prices without seriously affecting employment.

In advanced countries where incomes policy was applied to control cost-push inflation, efforts were made to fix up wage increase norms and impose a ceiling on such increases. But, in most developing countries, inflation is mainly due to deficit financing and shortage of even essential goods. One of the objectives to incomes policy is to arrest the growth in the share of non-work incomes in order to create a feeling among the workers that they are not only the participants in, but also the beneficiaries of development.

Productivity-Wage-Link-up.

An important ingredient of a rational incomes policy is the introduction of a system of productivity-wage link-up. But, in a developing country like India, the rate of productivity increase is less than that of the price increase. This calls for severe price regulation of essential goods, if necessary, price freezing, India's incomes policy has, thus, the dual task of fixing the wage increase norm and also price-freeze of wage goods. A situation therefore, should be created in which real incomes move along with productivity.

Essentially an incomes policy is meant to arrest cost-push inflation, whereas in India inflation is of demand-pull type which is the product of large budgetary deficits. An incomes policy would be ineffective unless the Government adopts monetary and fiscal discipline. The Government has to ensure price stability by reducing budget deficits and avoiding all non-essential public expenditure.

Pitfalls of Income Policy

In the Indian context, an incomes policy has to face a number of difficulties. Unemployment and underemployment have assumed ominous dimensions. Mere redistribution of income will not solve this problem. Other difficulties are : the presence of a sizeable non-monetised sector, disparities in agricultural and non-agricultural incomes, inadequate statistical data on the wage structure and the different methods followed to arrive at dearness allowance. The generation of black money defeats the very purpose of an incomes policy. An incomes policy, in order to arrest growing income inequalities, should control non-wage incomes like profits, dividends and rents. While there is need for controlling the salaries of highly paid officials like executives, the scheme of incentives should not suffer.

When some labourers are successful in avoilding restraints on rising wages, while others are not, an incomes policy becomes quite ineffective. This is the greatest challenge facing the incomes policies in developing countries. As rightly observed by Anne Romanis Braun, "an incomes policy authority must face a continual series of challenges arising from the need to reconcile the tendency for incomes to rise more rapidly at certain points in the system than elsewhere, with the necessity of satisfying the public's concept of equitable development of incomes." *Finance & Development,* March, 1975).

Reduction of Income Disparities

An incomes policy should aim at raising the incomes of the poor and limiting the very high incomes of the rich. It should seek to reduce inter-sectoral income differentials. The per capita annual earnings of workers in manufacturing industries are far higher than those of agricultural labour households. Moreover, there are wide disparities in wages and incomes in the industrial sector itself. It is observed that workers in the unorganised urban industrial sector are earning about 46 per cent of the wages of those in the organised sector. In evolving an incomes policy we ought to take into account contrasts (a) between the

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top earners in the organised sector and the top earners in the unorganised sector; (b) between the intra-sectoral top and low earners; (c) wage discrepancies between various governmental (centre, state, local), semi-governmental and public sector agencies, between various industries and between similar functional groups located in regions.

There must of course be some basis for allowing changes in incomes. This basis, however, is related to objectives of the incomes policy and the situation obtaining in the economy and its various segments at the moment. Obviously, the incomes policy should be complementary to the various programmes envisaged under each plan. Incomes policy is generally accepted as a policy to "hold down the rise in general wages and other money incomes to a rate compatible with productivity advance and stable prices." However, in the Indian context, the incomes policy needs a positive orientation since a major objective is to raise the income levels of those below the poverty line.

A national wage policy forms an important ingredient of an incomes policy. For various reasons wage anomalies have emerged and they continue to prevail. The scheme of linking wages to productivity or profit has resulted in these anomalies. The rule that the same work is to be rewarded in the same manner is sound, but it is hardly respected. In certain occupations, the non-wage benefits are very significant. It is, therefore, reasonable that the non-wage benefits should be taken into account in determining wage differentials. As things stand, a peon in an LIC office gets a higher salary than an elementary school teacher. The Bhoothalingam Committee quotes the Sixth Finance Commission as saying: "very wide disparities in employment at the lower scales, where duties and qualifications are easily comparable, are bound to generate discontent and impair maintenance of reasonable standards of efficiency of administration."

Minimum Wages

A relevant issue in the Indian context is the payment of minimum wage. It is rightly observed that a firm has no right for existence unless it pays at least the minimum wage. The Bhoothalingam Committee observed, "in our view the real minimum wage can only be the absolute national minimum, irrespective of sectors, regions or states, below which no employment would be permitted." The Committee has suggested a minimum wage of Rs. 100 which has to be increased to Rs. 150 after seven years. But, at this level after seven years, the labourers may not be able to meet the minimum needs. Regarding the minimum wage, it is wise to suggest different minima for different industries fixed on regional and pragmatic considerations.

The arrangement of linking wages to productivity is sound, though it also creates some problems. The idea is not to give a worker a wage in tune with his contribution to output (even if it is measurable), but to enable him share the benefits due to a general rise in productivity. The payment of dearness allowance is different in different occupations. It is reasonable to argue that the policy relating to DA should be uniform for all jobs. The Bhoothalingam Committee has recommended a universally applicable system of dearness allowance which would compensate for increase in cost of living and the basic needs for consumption. When this principle is followed justice will be done to all working in different regions and sectors. The committee rightly felt that while the DA should be linked with the cost of living, revision in basic wages should be independent of the dearness allowance and should largely depend on increase in productivity and GNP.

Farm Sector

So far as the farm sector is concerned, in most developing countries, both unemployment and disguised unemployment are considerable. In order to improve the living conditions of the landless labour, the productivity of labour in agriculture should increase at a rate high enough to raise their real wages and to support productive employment of the rising labour force. Unless farm productivity is considerably stepped up, even the strict enforcement of statutory minimum wages may fail to eliminate poverty among the farm workers.

Industrial Sector

So far as industrial sector, particularly public sector, is concerned. Government wage and salary scales should be comparable to those prevailing in the private sector so that it can retain the much needed talent. Moreover, since inflation in the Indian context, is demand pull type, what is necessary is not a restraint on the growth of the incomes but a restraint on consumption out of these incomes. The business people should not be allowed to raise prices merely with a view to secure higher profits. The idea is that the average real wage rate should be allowed to rise only according to the projected rise in per capita consumption. The consumption level of the weak should increase, but this has to be achieved by placing at their disposal more and better economic and social overheads so that they can raise their productivity.

Rational Wage Policy

A rational wage policy should not place some people in some sectors in an advantageous position and others in other sectors in a disadvantageous position. For instance, by linking wages to profits of a firm, the wage level may be kept at a high level. But, this is not justified when such profits are due to investment of public funds or due to malpractices indulged in by the business people. Therefore, a rational wage policy should aim at a guaranteed level of minimum wages particularly for those in the unorganised sector; improvement in wage levels in tune with increase in real national income; a wage structure which takes into account skill differential, job content and social importance but not disparities based on sectors, employers and size of establishment and a system of wage adjustments to improve efficiency and productivity.

The need of the hour is to evolve an integrated policy linking wages, incomes and prices. While efforts are made to link incomes and prices, it is conveniently forgotten that these two should be linked to productivity. Moreover, the wages and incomes policy can only be an integral part of the over-all economic policy. In the Indian context, incomes policy should step up productive investment to curb conspicuous consumption, control undue rise in incomes in certain spheres, avoid shortage of essential goods to ensure price stability and link rise in incomes to improvements in efficiency and productivity. □

Warehousing in Public Sector in India

M. K. Garg

Warehousing is an economic activity. It is an important link in the chain of marketing. It bridges the gap between the producer and the consumer. The growth of warehousing is related to the development of agriculture, industry and intra and inter-state trading of goods.

Origin of Warehousing

The setting up of public warehouses in India was suggested by a number of Committees and Commissions while recommending ways and means of improving the rural economy and expansion of institutional credit. The Central and State Warehousing Corporations, however, came into being on the recommendations of Rural Credit Survey Committee (1954) with the enactment of Agricultural Produce (Development & Warehousing) Corporations Act 1956, which was replaced by the Warehousing Corporations Act, 1962.

Three-tier System

Warehousing envisages a three-tier system under which centres of all-India importance are served by the Central Warehousing Corporation, centres of secondary market and district level are served by State Warehousing Corporations, and the centres at village and community levels are looked after by the co-operatives. This system provides for a homogenous development of warehousing by various interests at all levels.

Warehousing Corporations have been set up for achieving, *inter alia,* the objectives of expansionn of institutional credit, adding to the nation's wealth by reducing wastage and losses in storage, assisting the government and government-sponsored organisations in their scheme of price support, price control and storage and distribution of goods.

Warehousing Acts

Most of the State Governments have passed Acts and notified rules thereunder to regulate warehousing activities. The State Warehouses Acts generally prohibit the carrying on of business of warehousing for the commoditiese specified in the relevant schedules to the Acts without obtaining a licence on payment of prescribed fee and satisfying the conditions laid therefor by the competent authority. The Central and State Warehousing Corporations obtain licences for operating general warehouses in accordance with the provisions of the respective State Warehouses Acts and Rules. The duties and obligations of the warehousemen are prescribed in the State Warehouses Acts and Rules which, by and large, are on the same pattern.

Heavy packages of goods being unloaded with the help of a crane at a Central Warehouse

The Warehouses serve place and time utility and add to the place value of goods. They smoothen out fluctuations in supply and demand which may be influenced by natural factors, political events, commercial conditions etc. Warehouses provide flexibility and versatility in distribution and movement of goods, space cost and labour cost economy and accurate budgeting of distribution cost. It is a dynamic aspect of commercial storage which includes material handling, control and information systems. It is also concerned with the facilities and service incidental to or connected with storage, documentation, transport, handling and distribution of goods.

Expansion of Storage Capacity

With the growth and development in agriculture and industrial production in the country, the need for public warehouses has been felt increasingly. After overcoming the initial teething problems the C.W.C. has shown a rapid expansion in its storage capacity during the last one decade. Against 120 Warehouses with a capacity of 13.3 lakh tonnes in 1971, there are at present over 330 warehouses with a total capacity of approximately 39 lakh tonnes all over the country.

Warehousing being a capital intensive activity, the Corporation was not able to make profits upto 1965-66. It had to draw a total amount of Rs. 156 lakh as subvention from Central Government for payment of guaranteed dividend. The entire amount of subvention has since been repaid : the last instalment was paid during the year 1977-78. Since 1966-67, when it turned the corner, its profits have steadily

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*Managing Director Central Warehousing Corporation New Delhi.

The quality of commodity stored at Warehouses is checked regularly

increased. In 1975-76, the turn over was to the extent of Rs. 783.25 lakh in 1979-80 it increased to Rs. 1881.19 lakh—an increase of more than 140 per cent. During 1979-80, the Corporation recorded an all-time high profits of Rs. 548.29 lakh. The gross income during 1980-81 was Rs. 21.75 lakh yielding a net profit of Rs. 610 lakh.

Air-Conditioned Godowns

The Central and State Warehousing Corporations are having a wide net-work of warehouses spread over the length and breadth of the country. In these Warehouses, due care is taken of the goods during storage. Over 250 different types of commodities including foodstuffs, chemicals and industrial goods are handled. Besides the conventional stotrage godowns, the CWC is also running air-conditioned godowns at Calcutta Bombay and Delhi and provides Cold Stotrage facilities at Hyderabad. Special storage facilities are being provided by CWC for preservation of hygroscopic and fragile commodities. The CWC has been able to evolve technique for proper and scientific preservation of jaggery during hot and rainy season by selective aeration and controlled conditions. It has set up special warehouses at some centres for storage of jaggery. The jaggery stored in Warehouses fetches a premium price in the market. The Corporation has also evolved techniques for storage of spices, coffee, seeds and other commodities

Bonded Warehouses

The Corporation has been making constant endeavours to diversify its field of activities. It is operating a number of bonded warehouses at important centres in the country for stotrage of goods meant for imoprt and export It has recently undertaken stotrage and handling of export and import cargo at the International Airports. An import cargo complex has been put up by this Corporation at Palam, New Delhi. At this complex all facilities including inspection and clearance by Customs, payment of duty in the Bank, space for clearing agents etc. have been provided by the Corporation. The Corporation has put up a similar air-cargo complex at Amritsar for export/import of goods. It expects to take up similar activity at other International Airports in the country also.

Besides constructing new capacities at large urban marketing centres, the Corporation is also expanding its capacity at the port towns to serve the industry and co-operative bodies. The Corporation already has a sizeable capacity at Bombay Calcutta, Cochin, Madras, Mangalore, Paradeep, Kandla, Haldia and Vizag.

Provision of Other Services

The C.W.C. is providing package of services which include handling and transport, safety and security of goods, insurance, standardisation, documentation and other connected services and facilities. The Corporation is arranging stevedoring, clearance, handling, storage and distribution of cement at many ports as agents of the government. It is also providing similar services to other organisations when required. The arrangements for handling of goods and its transport from the rail-head to warehouses and vice-versa are being made by the Corporation.

The Warehouses are well designed to satisfy the requirements of scientific storage. These are provided with necessary equipment for grading, standardisation, packaging and preservation of goods. Regular check is made to ascertain the condition of stocks in storage. Both prophylactic and curative measures are undertaken to prevent deterioration of goods while in storage. These warehouses are also extending disinfestation services to the stocks stored in the premises of producer, trader, miller, co-operative and other organisations. Preshipment fumigation of exportable commodities is also undertaken by CWC.

It has been estimated that the loss of foodgrains under ordinary trade and farm level storage conditions is about 10 per cent. In the Central Warehouses this loss has been brought down to less than one per cent by careful application of various methods of storage and preservation. A grain saved is as good as a grain produced. By minimising the losses in quality and quantity of stocks held in the Central Warehouses the Corporation is making a significant contribution to the National objectives of increasing availability of foodgrains and attaining self-sufficiency.

Central and State Warehouses provide the necessary infrastructure for holding buffer stocks and assisting the government and government-sponsored organisations in distribution of essential commodities. The Warehouses are being utilised on an increasing scale for storage of foodgrains and other commodities procured under the Price Support Scheme of the Government and also for goods imported for public distribution or supplying to industry.

Farmers' Extension Service

Besides helping in the orderly marketing of agricultural and industrial goods, the Corporation has introduced a new scheme called the "Farmers" Extension Service" at selected centres to educate the farmers about the benefis of scienific storage and use of public warehouses. Under this Scheme, the warehouse staff assists the farmers in getting loans on the pledge of warehouse receipt and educates them in scientific storage and proper preservation of their stocks in their own premises This promotional activity is being gradually extended to other centres. Even though public warehousing in this country is 25 years old, it is a matter of deep concern, however, that the basic objective of providing convenient instituional credit to the producers and users has not become a common practice. The ratio of margin on warehousing receipt remains very conservative. What is more, the selective credit control enforced from time to time has been making the operation of even the existing facilities very difficult. Finally, the warehousing receipt still remains to become a fully negotiable document even though recommendations have been made in this connection. We are hopefully expecting a day will soon come when these deficiencies will be effectively removed.

Impact on Distribution of Commodities

The National Productivity Council of India has carried out a study on the impact of warehousing on distribution of selected commodities. It has observed that the availability of warehousing facilities helps in the economic development of the area and orderly marketing of commodities. Its main findings are: (1) there is a wide variation in prices of sensitive commodities like jaggery and pulses between beneficiary areas (areas served by warehouses) and non-beneficiary. areas; (ii) beneficiary areas are ensured of inputs at the right time and at the right place; (iii) the warehouses have helped in modification of the practices of the intermediaries and in reducing distribution cost ; (iv) an awareness has developed among depositors about proper storage ; (v) the stocks kept in the warehouses sell at premium prices ; and (vi) distress sales are avoided. The public warehouses play a vital role in bridging the gap between production and consumption.

Training

Warehousing is a complex activity. It requires knowledge of various disciplines. Warehousing is not taught, as such, in any educational institution. The Coorporation imparts training for managerial and technical personnel of its own employees as also to those belonging to State Warehousing Corporations State Governments, Co-operatives and others. The programme of training covers various aspects of management and operation of warehouses; the candidates are imparted practical training as well. This programme was examined by a team of the World Bank. They were impressed by the efforts of CWC and indicated that some of the developing countries may like to avail of the facility of traning by the CWC. It has so far organised 49 regular courses and trained 2941 candidates drawn from different organisations. A special training was also arranged for officials of Bangladesh.

SWCs

Besides the Central Warehousing Corporation, 16 State Warehousing Corporations are operating in different States. Central Warehousing Corporation subscribes to their share capital and advances loans to the State Governments and State Warehousing Corporations for the development of warehousing. Besides this, it provides assistance and guidance to them in the methods and system for the operation of warehouses. State Warehousing Corporations are at present running more than 1000 Warehouses with a total capacity of about 50 lakh tonnes.

Under the Sixth Plan

The Central Warehousing Corporation during the current Sixth Five Year Plan has planned to put up a capacity of 20 lakh MT with an outlay of Rs. 6700 lakh to be financed from the budgetary resources of the Government of India, institutional participation in the equity capital, long-term borrowing and internal resources. Out of this capacity, 3.75 lakh MT will be constructed for and on behalf of the Food Corporation of India under the World Bank Project and the remaining 16.25 lakh MT will be constructed under the General and Crash Programmes.

The Corporation has come to be recognised as the single largest public warehousing agency in the country providing a package of services. It occupies a place of pride among the public sector organisations in India which are making profits and rendering useful service to the nation.

IFCI'S ALL ROUND PROGRESS

THE performance of the Industrial Finance Corporation of India (IFCI) had been impressive during 1980-81. According to the Thirty-third Annual Report released recently, in the year 253 projects had been assisted including 104 new ones. Assistance to projects located in the notified less developed districts|areas increased to 48.7 per cent of the total assistance sanctioned during the year as against 46.5 per cent in the previous year. Sanctions for the year registered an increase of 35.4 per cent from Rs. 156.43 crores to 237 projects in 1979-80 to Rs. 211.88 crores to 253 projects in 1980-81. Disbursements recorded a rise of 34.3 per cent from Rs. 94.58 crores in 1979-80 to Rs. 127.85 crores in 1980-81. Net profit for the year 1980-81, was Rs. 8.38 crores as against Rs. 4.79 crores for the year 1979-80.

The cumulative net financial assistance sanctioned by the IFCI during 33 years of its service to industry aggregated to Rs. 1293.05 crores up to June 30, 1981 for 1404 projects involving a capital outlay of Rs. 9546.20 crores. This assistance was claimed by 188 concerns in the cooperative sector, 109 concerns in the joint sector, 80 concerns in the public sector and 801 concerns in the private corporate sector. Total disbursements up to June 30, 1981, aggregated to Rs. 928.54 crores, which constituted 71.8 per cent of the total sanctions. The total assistance outstanding as on the 30th June, 1981, amounted to Rs. 582.87 crores.

The IFCI's Annual Report has been presented in an attractive volume printed in multicolours and sprinkled with beautiful photographs, graphs and tables on a very expensive art paper.

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Manpower Development in North-Eastern Region of India

R. N. Tandon*

ECONOMIC development cannot take place without proper planning for manpower development, as technically qualified people are required to carry out these programmes. The inadequacy of technically qualified people has been one of the most important factors for the backwardness of the North Eastern Region. During the various Plans, efforts are being made to bridge this gap.

A Directorate of Manpower Development has been established in the North Eastern Council to chalk out schemes whereby people can be trained for carrying out developmental activities of the constituent States and Union Territories. The Council has been making efforts for the development of manpower both technical and non-technical in four ways viz ; (a) sponsoring of personnel from this region for under-graduate and post-graduates studies, (b) sponsoring candidates for short duration specialised courses ; (c) setting up of new Institutes in the region, and (d) by expansion or strengthening of the Institutes already existing in the region.

As agriculture is the main support of the people of the region, so NEC started training people in agriculture and allied subjects as a first step. A scheme was formulated in 1975 under which candidates from this region were sponsored for undergraduate and postgraduate studies in the fields of agriculture and allied subjects in the different Universities of the country. The council also gave scholarships|stipends to the candidates selected to pursue these courses. The scheme has been a big success. The Council also sponsors in-service candidates for various specialised short-term training programmes which are being conducted by well recognised Institutes|Universities of the country in various fields.

The North Eastern Council, with a view to increase the number of seats in the Assam Agricultural University has offered financial assistance and the University is offering NEC an additional 35 seats for the B. Sc. courses and 30 seats for B. V. Sc. courses at Khanapara every year, for the participants States other than Assam.

The region had only one Agricultural University in Assam, Another College of Agriculture was set up in Nagaland a few years back under the auspices of the North Eastern Hill University with an annual intake of 50 students. Recently Government of Manipur has also established an Agriculture College in Imphal with an annual intake of 40 candidates. Besides, NEC has helped in the expansion of the School of Veterinary Sciences and Animal Husbandry at Ghungoor, and Fisheries Training Institute at Joysagar.

The Council has a scheme to invite Professors of repute, so that their services could be obtained by the University for short periods. The Council has another scheme under which "Refreshers training Courses" are organised in agriculture, animal husbandry and veterniary sciences by the Assam Agricultural University at their campuses at Jorhat and Khanapara for in-service candidates of the region. The Council also organises special training programmes for development of fishery in the north eastern region in collaboration with the Central Institute of Fisheries, Bombay.

The North Eastern Council has financed setting up of a Regional Medical College in Manipur whose benefits are shared by all the constituent states except Assam as Assam has already 3 Medical Colleges.

NEC started and funded a Regional Graduate College of Nursing at Gauhati where nurses are being trained for the entire region. Similarly, the Council has set up a Regional Institute of Pharmacy at Agartala with an annual intake of 50. Besides, students for B.Sc. and M.Sc Pharmacy are being sponsored to recognised Universities for taking these courses. The Sixth Plan of the North Eastern Council provides for starting a B. Pharm course in Assam Medical College, Dibrugarh.

To meet the shortage of Engineers, NEC is assisting the Tripura Engineering College to increase the intake of students from 60 to 120. The Assam Engineering Institute which runs a diploma course in Chemical Engineering is being assisted to increase its annual intake from 35 to 50. The Council is also comtemplating to strengthen existing Institutes of the Region, to provide specialised training in fields like Agricultural Engineering, Chemical Engineering, Food Technology, Electronics & Telecommunications, Petroleum Technology etc.

It may be significant to point out that the North Eastern Council has already accepted in principle the setting up of an Institute of Science and Technology in this region. The Indian Institute of Management, Ahmedabad has been requested to prepare a detailed project report.

For the development of Industries in the region, Council conducts course on Small Scale Industries in collaboration with the small Industry Extension Training Institute, Gauhati. NEC is running a special one-year course for training of drillers in collaboration with NEEPCO. In the field of Sericulture, the Council has taken steps to increase the intake of students in the

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* Director, Manpower Development, North-Eastern Council

sericulture Training Institute and also sponsor candidates for post-graduate degree and diploma courses in sericulture in the sericulture Institutes at Ranchi, Mysore and Behrampur.
and stipends.

To encourage more and more students to go in for specialised engineering courses, the North-Eastern Council has recently formulated a scheme where stipends are given to students who of their own get admission in specialised branches of Engineering. The Council gives stipends to students who are pursuing studies in Management Courses in reputed Institutes of the country. Keeping in view, the escalation in the prices, the Council has recently revised its rates of scholarships and stipends.

Although the task of manpower development is colossal, it is hoped that the efforts which are being put in by the North Eastern Council will go a long way in providing technically qualified personnel to man the jobs in this region.

(Courtesy AIR Shillong)

Impact of Bank Finance on Agricultural Productivity

Prem Lal Joshi*

THE STATE BANK OF INDIA is the 'lead bank' in Chamoli, Pauri-Garhwal, Tehri-Garhwal and Uttarkashi districts of the Garhwal region of Uttar Pradesh. It occupies a pre-eminent position among other banks in these districts. By December, 1978 it accounted for 73.7 per cent of commercial banks' branches in the region, 70.1 per cent of commercial banks' deposits, 83.2 per cent of commercial banks' advances and 95 7 per cent of commercial banks' credit to agricultural sector. In this paper it is our main objective to assess the impact of agricultural finance provided by the State Bank of India on agricultural productivity.

Methodology

The study was undertaken in the three districts of Pauri-Garhwal, Tehri-Garhwal and Uttarkashi. During 1977-78, the branches of State Bank of India gave loans to 414 agriculturists in the three districts. It was decided to select 20 per cent of the paricipants (participants means those farmers who borrowed loans from the State Bank of India for agricultural purposes) and, therefore, 85 participants were selected in all. The State Bank of India had 31 branches, but 21 branches were engaged in giving agricultural loans in the three districts. The selection of nine branches was made in proportion to the number of participants in each district. From each selected branch except the one of Uttarkashi, nine participants were selected at random through draw of lots. At Uttarkashi 13 participants were selected because of its being the main branch with the largest number of participants. A matching sample of non-participants (non-participants means those farmers who did not borrow loans from the State Bank of India but either borrowed from other sources or utilised their own funds) was selected keeping in view the size of land holdings of participants from the same villages in which participants were selected within the ambit of the selected branches.

An exhaustive questionnaire was prepared for both participants and non-participants to collect the relevant information. In the questionnaire, we incorporated in detail the items like socio-economic features, cropping pattern, level of inputs and outputs, sources of income, utilisation of loans etc. Both types of farmers were personally investigated.

Data Analysis

An Endeavour was made to analyse the impact of loans on agricultural productivity assuming that proper utilisation of funds leads to higher productivity. We were not much keen on exploring as to how much increase in productivity was brought about by the provision of credit but were more interested in analysing the increase in productivity through credit provided by the State Bank of India vis-a-vis other sources of finance, either farmers' own funds or those borrowed from other sources.

Findings

The size of land holdings of the surveyed farmers revealed that 41 participants and 53 non-participants had their holdings below 2 acres while 32 participants and 21 non-participants had land holdings between 2 to 4 acres. Only 2 particpants and 3 non-participants had land holdings measuringg 8 acres and above. The paired T-test showed that there was no significant difference between the size of land holdings of two samples (The value of paired T-test was 0.509). The average gross cropped area per participant was calculated at 2.31 acres and for non-participants at 2.15 acres. Twenty three per cent of the cropped area was irrigated in the case of participants and 26 per cent in the case of non participants. The paired T-test showed that there was a significant difference between the irrigated area of the two samples but the magnitude of the difference was not impressive. Cropping pattern of the two sample farmers revealed that wheat and paddy, which formed major crops together claimed 64.5 per cent in the case of participants and 68.4 per cent in the case of non-participonts. Area under HYV of wheat and paddy was 14.0 per cent and 11.0 per cent respectivelyy for participants whilst these crops accounted for 90.0 per cent and 7.5 per cent of the area respectively in the case of non-participants. Yield per acre of major crops revealed that wheat and barley had higher yields in the case of non-participants while paddy, jhingora|manduwa, potato and soyabean had more yields in the case of participants.

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Timely receipt and utilisation of loans is a significant variable in assessing the concrete benefits of loans. Our study revealed that 85.9 per cent of the participants secured their loans within a period of four weeks after making the applications to the State Bank of India. The State Bank of India met 69.1 per cent of the total demand of credit of participants. While 70.0 per cent of total loans went to those participants who had size of land holdings below 4 acres, 10.7 per cent of the total loans were taken by the participant having the largest land holdings (8 acres and above). The average loan per participant worked out to Rs. 714. It accounted for Rs. 3·250 per participant with a land holding of 8 acres and above and the lowest of Rs 405 for one with a holding of below 2 acres. Utilisation of loans by participants revealed that crop production loans were fully utilised. There was a high degree of mis-utilisation of borrowed loans against land deveopment and impements. Thus the total loans properly utilised formed 75.8 per cent and of those diverted for consumption purpose amounted to 24.2 per cent.

The loans taken from State Bank of India by participants for crop production purposes were not very helpful in increasing the productivity of the land of participants vis-a-vis non-participants. This means that the crop production loans of the State Bank of India were replacing the funds obtained from other sources or farmers' own funds without creating any substantial impact. One important feature of crop loan policy of the bank observed was that loans were provided mostly in cash and not in kind component.

Policy Implication

The policy of financing agriculture through the commercial banks or induction of commercial banks' direct lending to agriculture is to create impact on agricultural production. In order to obtain the objective in the hilly area of Garhwal Region, there is urgent need to reexamine the crop loan policy by the banks particularly by State Bank of India to see that finance obtained from the banks is not used to substitute finance obtained from other sources or farmers' own funds. In order to have net addition to production through providing credit, efforts are required to give crop production loans only in kind components and to the farmers who would borrow to increase their working capital rather than replace the working capital obtained from other sourses. Strenuous efforts are needed by the State Bank of India to increase the number of trained personnel who can disseminate the knowledge among the farmers for the proper use of inputs and supervise post-lending activities.

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Potential for Sugar Industry in Punjab

G. S. Kainth* and R. S. Bawa**

SUGAR industry plays an important role in Indian economy because of its multiple contribution in the shape of employment and provision of raw materials to other industries. It ranks second among the major consumer industries, next only to cotton-textile industry. The growth of this industry was greatly influenced by the government policies on prices and excise taxes, which in turn have reflected the pressure generated by cane-growers, the sugar producers and the consumers. Another feature of this industry had been the sharply differing conditions of production in its units in different parts of the country. In U.P. and Bihar, for instance, operations are limited to 110—160 days per year while in Southern States sugar production can continue for 170—220 days, because of a longer cane growing season.

Growth

The number of sugar mills in India increased from 216 in 1970-71 to 299 in 1979-80—an increase of about 38 per cent. Likewise, the production of cane has increased from 1,26,368 thousand metric tonnes in 1970-71 to 1,56,450 thousand metric tonnes in 1979-80 showing thereby an increase of about 24 per cent. Thus on an average in 1970-71 for every 585 thousand metric tons of cane there was a sugar mill in India and this quantity declined to 523 thousand metric tonnes in 1979-80. The percentage of cane crushed to total cane has increased from 30 per cent to about 38 per cent during the period under review. This situation was also examined for different regions of India. The increase in number of sugar mills has been minimum in the northern region. Whereas the production of cane in this region was one fourth of the central region—the region having maximum number of sugar mills (94) in India—the number of sugar mills (14) was only one seventh. The cane availability per sugar mill in this region was about 1140 thousand metric tonnes in 1970-71 and this declined marginally to 1099 thousand metric tonnes in 1978-79.

With the cane availability of 878 thousand metric tons per mill during 1970-71 Punjab ranked fourth among the State of the Indian Union. In 1978-79 it ranked second with 1008 thousand metric tonnes per mill. It was next to Haryana with cane availability of about 1370 thousand metric tons. Out of 17 States, there had been decline in the cane availability per sugar mill in nine states in 1978-79 as compared to 1970-71 while in the remaining States it had either increased or remained almost constant. Punjab and Rajasthan are the only two States in the northern region showing a significant upward trend in cane availability per sugar mill. There is, therefore, need for setting up sugar mills in the region in general and Punjab, in particular. The case for setting up more mills in Punjab is all the more strengthened by the fact that the percentage of cane crushed to total cane production in 1970-71 was third lowest (10.65 per cent) in Punjab whereas in other States the percentage was as high as 63.32 per cent as in Maharashtra, 52.33 per cent in Bihar and 48.67 per cent in Kerala. Even at the national level, the percentage of cane crushed to total production was 30.23 per cent in 1970-71. In 1978-79 the relative position of Punjab in respect of cane crushed as a percentage of total cane production had not changed much due to lack of additional sugar mills and it remained a poor fifth. In 1978-79 the percentage of cane crushed to total cane production was as high as 90.58 per cent in Gujarat, 85.56 per cent in Maharashtra, 75.00 per cent in Kerala and 69.78 per cent in Bihar.

Recovery Rate

The efficiency of the sugar industry in a particular region is determined by the recovery rate. The recovery rate of Punjab sugar mills, was as low as 8.57 per cent as against the national figure of 9.78 per cent in 1970-71. On the other hand it was as high as 11.25 per cent in Maharashtra, 10.56 per cent in Karnataka, 10.22 per cent in Gujarat and 10.21 per cent in Andhra Pradesh. The relative position of Punjab was the third lowest—higher only to Assam with 8.16 per cent and Orissa with 8.32 per cent in 1970-71. But in 1979-80, it improved much and was third highest with 10.14 per cent, next only to Maharashtra with 10.60 per cent and Gujarat with 10.58 per cent. The common argument that the under-development of sugar industry in Punjab, is due to the lowest recovery rate is, therefore, not valid.

Production-Consumption Ratio

A study of the production-consumption ratio reveals that only 17 per cent of the sugar consumed in Punjab was produced in the State during 1970-71. This figure marginally increased to 19 per cent in 1979-80—an increase of only 2 per cent as compared to 15 per cent increase in the cane production during the period. In contrast to this, the ratio of production to consumption of sugar in 1979-80 was as high as 155.47 per cent in Maharashtra, 149.54 per cent in Uttar Pradesh, 100.16 per cent in Tamil Nadu and 98.49 per cent in Karnataka. The low production-consumption ratio in Punjab provides all the more justification for setting up more sugar mills there.

Performance of Sugar Mills in Punjab

While recommending the setting up of more sugar mills, it is worth-while to examine the performance of the existing sugar mills in Punjab. Six sugar mills

(Continued on page 24)

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North-South Dialogue :

Cancun and After

G. Srinivasan*

RECENTLY the entire attention of world was rivetted on a particular place, Cancun, the holiday resort on the Caribbean coast of Mexico, where heads of government of 22 countries, representing the industrial North and the poor South assembled to come to grips with problems afflicting the world economy. Though the outcome of the meeting was said to be favourable from the point of view of the participants both the rich and the poor countries are yet to devise ways and means of overcoming many of their fundamental reservations over the problems.

The world today presents a spectacle, which is characterised by conflict, drift, injustice and instability, but which can be changed by governments acting in concert, inspired by a sense of common purpose to restructure the existing international system by means that are abundantly available to them. The Organisation of Petroleum Exporting Countries have capital without technology; the industrial countries have technology without sufficient capital and markets, while the developing countries have potential markets without capital. Particularly hard hit by world economic developments in this scenario are the poorest or the least developed countries which have been unable to lure the necessary capital to keep up growth in the face of the deterioration in their balance of payments. Each bloc suffers from its own insecurity in this triangle of distrust, but they cannot overcome it by retreating into self-sufficiency and self-help. The situation calls for political accommodations of the most exacting type and, viewed from this angle, the Cancun summit of world's 22 leaders was a first necessary step in the direction of ensuring continuity in the dialogue between the North and the South.

The world is beginning to recognise that peace is not only imperilled by power rivalries and conflicts between extreme idiologies but that the future of mankind is endangered just as much by mass starvation, economic collapse and environmental disaster. It is a folly to imagine that fenced-off pockets of prosperity and security can last indefinitely in an age when one-fifth of the world's population, concentrated mainly in the southern hemisphere is suffering from starvation, malnutrition and illiteracy. While many citizens of the advanced countries habitually over eat, the average African has ten per cent less to eat today than ten years ago, according to the Food and Agriculture Organisation of the United Nations (FAO). The latest report by the Commission of the European Communities, says, some 3,000 million human beings have an annual income lower than the monthly per capita earnings in industrialised countries. In a number of Third World countries, the annual income is less than the weekly earnings of workers in advanced countries. Underdevelopment is the divide which separates the two halves of the world.

The principal causes of underdevelopment include population growth, shortage of natural resources and the existing world economic system. While a high birth-rate is often deemed a measure of prosperity in industrialised countries, in poor nations it often leads to under-nourishment. Besides, farming cannot keep up with this scale of population growth. The Third World countries do not possess all the natural resources required either to meet their own needs or to export a surplus to earn the foreign currency needed to buy the goods they lack. This situation is compounded by climatic hazards (droughts, floods) which can damage many years of efforts in a few days The Natural environment in many Third World countries has deteriorated as a result of these climatic factors and also due to ill-suited farming techniques.

The majority of Third World countries have attained political independence, but they are still held in hostage to the economic order created by and for Western countries. While, for example between 1961 and 1964 Tanzania needed 7.5 kilos of Coffee to buy a Swiss watch, ten years later it required twice as much. These swings in terms of trade bring about an imbalance between imports and exports, a drop in the purchasing power of and a deterioration in the developing countries' financial situations.

Increasing Imbalances

A conservative estimate by the World Bank states that some 800 million people live in absolute poverty. Life expectancy in developing countries is 56 years; in the industrialised countries it is 72. One in ten infants in the developing world dies before the first birth day, while in the industrial world only one in 50 dies. Altogether, some 140 countries qualify themselves as 'developing'. But the South also includes the OPEC oil producers, middle-income developing countries like Brazil (with a 1,750 dollars per capita annual income) and the least developed countries like Bangladesh, where per capita annual income is a trivial 90 dollars. The 140 developing countries have 3.4 billion people—75 per cent of the world's population but they share only 20 per cent of the world's riches. To keep from falling the poor nations have been forced to borrow massively to pay their energy bills, food bills and the interest on their debts. Their debts which were 68 billion dollars in 1971, rose by 1980 to nearly a staggering 439 billion dollars. The industrialised nations, on the other hand, have only one-fourth of the world's population, but control 79 per cent of the world's income.

The roots of the confrontation between North and South date back to the 1950s when Third World countries, fresh from breaking colonial bonds, formed the non-aligned movement. In 1964, a large 'Group of 77' all of them developing countries formed a block at the first United Nations Conference on International

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* Economic Division, PTI, New Delhi

Trade and Development. A decade later with the damages of the OPEC oil price increase still submerging, the Group of 77 pushed through a UN resolution calling for a new international economic order (NIEO). Then came the Paris Conference convened by the former French President, Mr. Giscard D'estaing in 1975 to initiate North-South dialogue. Since then, North-South dialogue got reflected in all aspects of economic relations between developed and developing countries. When the Third World countries became obstreperous in their demand for a NIEO that would ensure them more equitable distribution and flow of resources from the rich nations, the then President of the World Bank Mr. Robert McNamara set up an independent commission under the chairmanship of the former West German Chancellor Mr. Willy Brandt. (It may be recalled that the first global move to tackle the problems of poverty was made in 1969 when the former Prime Minister of Canada, Mr. Lester Pearson, headed a highpower Committee that made some far-reaching findings.) The basic theme of the Brandt Report, which was titled 'A Programme for Survival', is that appropriate international action can make a significant contribution towards dealing with the twin problems of inefficiency and inequality. The Report averred that the 1980s could witness even greater catastrophes than the 1930s" and that "major international initiatives are needed if mankind is going to survive" It maintained that at the heart of the present crisis lie the interwoven issues of economic development, international justice and the relations between the North and the South. The programme outlined in the Brandt Commission report maintains that both groups of countries (North and South) could benefit from particular measures of reform. Such measures include agreements to stabilise commodity prices, freer international trade, codes to regulate foreign investment and the transfer of technology, international monetary reform and the adoption of an agreed "global strategy for energy" embodying exceptional measures of international collaborations".

Causes for the Division

But the road to redemption for harassed countries from the southern hemisphere has already been paved with deep disappointments, the paralysis in global negotiations for wrapping up commodity agreements and the uselessness of the recent UN Special Session on this subject Commodities, for example have a special bearing for both the developed and the developing countries--for the latter, because they bring in some 60 per cent of export revenue (excluding oil) and for the former, because they are necessary for their industry (minerals, textile fibres, rubber etc.). The crucial issue now impairing international trade in agricultural commodities over the past two years is the entrenched volatility of commodity prices. Besides, prices of comodities exported by the Third World are plunging. Unduly low world prices simultaneously step up the budgetary costs of domestic support of farm incomes in high-cost producing countries and depress the foreign earnings of low-cast exporting countries. Though global commodity agreements offer only a brittle instrument for stabilising world commodity markets, the goal is still worth pursuing as the costs of alternatives are even higher especially in terms of market instability and supply uncertainty. But commodity agreements designed to stabilise the export earnings of Third World countries confront an uncertain future as market surpluses and arguments over prices strain the atmosphere of international negotiations. Already deep dissensions over the operations of the pacts and the philosophy behind them have been underlined by recent battles over cocoa and tin. Commodity agreements usually work through a buffer stock or stockpile which is used to intervene on world markets to preclude prices sinking below or soaring above an agreed price range. Agreeing on a price range has always been difficult and the recent fall in prices of many commodities exported by Third World countries has made the task even more arduous. Consumers want prices in line with past trends while producers seek to boost the real value of their export earnings. Since the Reagan administration took over in Washington, commodity agreements have run into trouble, as the U. S administration's ideological opposition to interference with free market forces is obstinately strong and widely known.

Besides commodities, the South is also sore over the gap in food aid. All misery that cannot be remedied speedily by programmes to subserve agricultural production in Third World countries must be alleviated by increased food aid. Thirty five years ago, as the world struggled to recover from the ravages of its most devastating war ever, the then incipient FAO was helpful in the establishment of the International Emergency Food Council, which recommended allocations to importing countries of food commodities in short supply. A much more ambitious long-term proposal, put forward by the Director-General of FAO, Sir John Boyd Orr to stabilise world food prices through buffer stocks, to establish a world food reserve and to finance the disposal of surpluses to needy nations was spurned out of hand by member governments. It is most unfortunate that food-surplus advanced countries have stubbornly resisted any attempt to mobilise collective commitment to prepare in advance some mechanism that could respond quickly and effectively when wars, droughts or other natural calamities jeopardise food supplies. The South is understandably angry over gap in food aid disbursements. The minimum target of ten million tonnes annually agreed to more than six years ago at the World Food Conference by grain-rice countries has not yet been attained. Meanwhile, further population growth of perhaps 500 million has already rendered that target level insufficient. As regards world food security, the need for buffer stocks is even more urgent now than when the largest cereal exporter, the United States, was arguing its case for a 30 million tonne reserve during the protected International Grains Arrangement (IGA) negotiations, which were suspended two yeas ago.

Yet another vital demand that needs to be fulfilled with a sense of urgency from the standpoint of the South is the conversion of the present voluntary International Emergency Food Reserve into a binding convention initially for a three-year period so as to separate at least a minimum amount of food supplies that have been allocated for emergency purposes from the uncertainties surrounding global supply and price movements. Apart from the fact that contributions to the Reserve have at no time reached the established minimum target of 5,00,000 tonnes, the operation of the Reserve itself has faced constraints. Nor are the pledges free from strings, as some donors reserve the right to restrict the list of potential beneficiaries.

Besides food aid, South has been nursing a sense of betrayal in two other areas, namely the restarting of the UN-sponsored global negotiations which are bogged down and the setting up of an affiliate of the World Bank to finance energy production in poor countries. On global negotiations, the talks have been stalled in the United Nations for more than two years following American-led resentment to resolution 34 138 calling for negotiations within the UN on how to establish a new international economic order, envisaging sweeping reforms in the areas of trade, international liquidity, debt relief, technology transfers and foreign investment. The developing nations want the projected 'global negotiations' to take place in the UN because that is the principal international institution in which they have a majority. That is precisely why the idea is opposed by the U.S., which wants talks to proceed in the established Western-dominated institutions including the World Bank, the IMF and the General Agreement on Tariffs and Trade (GATT). Unless developing countries try to persuade the United States for conducting global negotittions in a 'cooperative spirit', whatever may be the form, either the UN or the multilateral institutions such as the World Bank, IMF and GATT, the prospects of North-South dialogue taking any constructive shape still remain sombre.

Cancun and the Future

Though the summit idea of world leaders just as the one that took place in Mexico in the last week of October was the corollary of the Brandt Commission report, the absence of the Soviet Union and its East bloc allies in the summit meeting had set an insalubrious precedent and cast doubts about the genuineness and goodwill of these countries for the development of Third World, whose cause for a better world economic order is claimed to be espoused by the USSR. Soviet Union's rejection of the invitation on the plea that the problems afflicting most of the developing countries were the legacy of colonial system practised by the capitalist industrial countries and as such should be resolved by them rings hollow. The world's major power could have shown a good deal of consideration without going to the historic reasons for the anamolous structure of world trade. But USSR's pent-up resentment against West blinded its vision and rendered it oblivious to the realities of present-day.

At the recent summit meeting of World leaders, Mrs. Indira Gandhi, Prime Minister of India, pleaded with the participants to endorse the target for official aid as laid down in the international development strategy for the 1980s, 0.7 per cent of the GNP. She particularly stated that the future growth of global financial institutions should be such as to increase their effectiveness as truly international institutions whose working was not influenced by extraneous non-economic motives. She called for opposition to the growth of protectionism, in whichever form it manifests.

India also submitted to the North-South summit meeting a five-point action programme designed to brightening the "rather dismal prospects for the exports of developing countries". The points suggested include establishment of new commodity agreements, early activisation of the Common Fund to stablise commodity prices and subserve diversification, speeding up the process of negotiations to renew the 'multifibre agreement' which is locked in controversy and finally setting up a mechanism for systematic review of the non-tariff barriers that now disrupt developing countries' trade and phasing them out.

Despite all the simmering differences that lie beneath the relations between the North and the South, the Cancun summit turned out to be, as was tersely summed up by Prime Minister, Mrs. Indira Gandhi, "a step forward". Even the United States, which had expressed reservations in participation, conducted itself to the satisfaction of developing countries' leaders. Though the developing countries still do not think the U. S. has come far enough, they see that America is getting more and more involved in the negotiating process and therefore putting itself in a position where it will either have to make concessions or risk a major political loss of face by pulling out of the whole exercise at an advanced stage. Experts note that the failure to bring about a consensus at Cancun is not the end of the affair. Informal contacts are to start in the United Nations in the near future to see if the "blobal" talks could be resumed.

One important outcome of the Cancun summit of world leaders is that the developing countries are no longer, privately at least, demanding massive transfer of resources from rich to poor countries as a matter of principle. They are concentrating instead on nuts and bolts means of promoting development, in fields like food and energy. Several countries, for instance, drew attention to the recognition in the joint Presidential summing-up that food aid, except in emergency, is no substitute for stepped-up agricultural efforts by the developing countries themselves. To the extent that developing countries should also brace up and do what they can to improve their lot, the message and the Cancun meet itself turned out to be prelude to optimistic developments across the frontiers of nations. But an equally inescapable conclusion is that the North can hardly expect to manage the world unchallenged and that too unchanged for ever. □

Treatment for Clay Soils

WHILE draining overmoistened soils specialists in land-reclamation often encounter clay which poorly filters water, and therefore conventional drainage is not always efficient. This problem has been tackled at the Soil Science Department by Professor Felix Zaideman, D. Sc. (Biol.) who has proved the high efficiency of the deep loosening of clay soils (up to 60—80 centimetres). This method of treatment not only increase the outflow of excessive moisture, but also favourably influences the chemical and biological composition of soils, and enhances their fertility, he maintains. The deep loosening method worked out by him has undergone practical tests at a number of firms and has raised the harvest of grain and grasses by 15—20 per cent.

(*Soviet Features*)

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Alcohol Fuel

P. D. Tyagi*

THE USE OF ALCOHOL fuels is no new disconvey, Alcohol has been used as motor fuel, either pure or blended with petrol, in various parts of the world for many decades. In 1876, the first modern combustion engine based on the autocycle, was developed to run on alcohol as well as on petrol. Germany used alcohol fuel derived from potatoes during World War II. Americans used the same to power jet aircrafts, and the US fuel stations sold a blend called agrol.

Advantages

Alcohol as auto-fuel has some advantages over petrol. For instance, ethanol, with its high octane rating of around 106 allows for high compression operation without knocking. While it allows safe operations at a compression ratio of above 12, the value for gasoline is only 7. And, because of its high latent heat of vaporisation, ethanol helps to achieve a lower charge temperature during induction than is possible with gasoline, ensures higher charge density and hence greater volumetric efficiency, and helps in cooler engine operation.

The alcohol blend with gasoline, namely gasohol is said to promote higher compression, quicker ignition, greater fuel economy, lower exhaust temperature and causes far less pollution. A number of countries have been using gasohol for quite some time. Brazil should be credited for first experimenting with gasohol, a mixture of 80 per cent petrol and 20 per cent sugarcane alcohol. The Philippines which uses a mixture, namely alcogas, of 85 per cent gasoline and 15 per cent anhydrous alcohol, has already planned to construct one-lakh litre per day plant costing 34 million to manufacture alcogas. The countries like Austria and Poland have also commercialised the use of alcohol as a transport fuel constituent.

India's Experience

Following the oil crisis and revival of interest in other countries in using alcohol as autofuel, considerable work is underway in this regard in India. Dr. H. B. Mathur, Professor of Mechanical Engineering at the Indian Institute of Technology (IIT), New Delhi, has found that a mixture of 25 per cent alcohol and 75 per cent gasoline can be used with advantage in automobiles without any modification in existing engines. The IIT study shows that cars run on such a mixture save 5 per cent fuel, produce 8 per cent more power and cause much less pollution than petrol-run cars. A trial run of a car using gasohol has been a remarkable success. The gasohol comprises 80 per cent petrol and 20 per cent power alcohol produced from cassava by the Central Tuber Crops Research Institute, Trivandrum Experts have reported that the pick-up was good and the car went smoothly.

Professor Mathur hopes that ethanol (alcohol) could also be used in the existing diesel engine as a bifuel to save upto 30 to 40 per cent of diesel. The Development and Training Centre of the National Small-Scale Industries has gone a step further with the development of a prototype car which consumes a blend of ten per cent alcohol and 90 per cent diesel and encounters no problem. Not surprisirgly, scientists of the IIT, Madras and the research engineers of Standard Motor Products of India and Carburettor Limited in Madras, have developed India's first motor vehicle that uses alcohol (upto 40 per ctnt) and diesel. The hardware addition for conversion of the existing diesel engine is reported to cost less than Rs. 2,000. In this system, alcohol and diesel enter the engine through separate tubes in the manifold. The engine uses diesel at the start but gradually switches over to alcohol as the vehicle picks up speed. It is reported that at a speed of 50 km. per hour, the fuel that enters the engine is 54 per cent diesel and 46 per cent alcohol. If such model is incorporated in trucks, lorries and in industries which use diesel sets for back up power generation, the country can save about ten million tonnes of diesel.

According to Dr. N. A. Ramaiah, Director, National Sugar Institute, Kanpur, some Indian Oil Corporation cars have been running on pure alcohol for about a year on experimental basis. The experiment did not involve any change in the engine design except a slight modification in the carburettor. It is claimed that cars are running perfectly well and there has been no appreciable difference in fuel consumption. In another experiment, the Guindy Engineering College, Madras, has successfully converted a car engine to run on ethanol instead of petrol. The cost of the conversion worked out to as little as Rs. 650 per unit. Earlier, an agricultural diesel engine was modified to run on a mixture of diesel and alcohol. Engineers at the Perarignar Anna University, Madras, have also converted a Fiat car to run entirely on ethanol. A study by the Indian Institute of Petroleum at Dehra Dun, in this respect has, yielded encouraging results. Alcohol does not vaporise adequately at low temperatures, thereby making ignition uncertain and difficult. This handicap is sought to be overcome by providing a pump to inject some petrol from a separate tank into the carburettor for the purpose of starting the motor. According to the experts there, modifications in the carburettor and the injection system requires only about Rs. 1,000.

Problems

Alcohol, though a promising source of motor fuel in future, creates several technological problems. According to scientists from the IIT, Madras, the use of gashol include problems related to vapour locks, preventing the release of fuel to the engine in long-distance running, corrosion of engine parts due to the presence of moisture in ethanol and starting of engine in cold weather. The scientists feel that there may be danger of environmental pollution as a result of emission of aldehyde, a cancer agent, and the likelihood of ethanol being used for drinking in areas where prohibition is in force. They also fear that largescale diversion of sugarcane used for making sugar gur and khandsari, for producing ethanol may lead to social problems.

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*Wealth of India, Publications and Information Directorate, CSIR, New Delhi.

In terms of economy, there are two hurdles for gasohol. No doubt, with 20 per cent alcohol in gasohol, there is a saving of 2 lakh tonnes of petrol in the country, but unless the excise duty is cut drastically, the price of alcohol will cost 40 to 50 times more than the actual price. Secondly, there is not much alcohol to spare now for use as fuel. Molasses is the main raw material for alcohol manufacture in India. In its handling, molasses presents several problems in terms of storage and transportation. Due to inadequate storage facilities hardly 74-80 per cent of molasses produced becomes available for alcohol manufacture. Due to limitation of technology, the availabiity of fermentable sugar from molasses is normally lower than the total reducing matter. On the basis of 80 per cent overall efficiency the alcohol yield should be 270 litres of 95 per cent product per tonne of molasses. However, the actuals vary from 220-240 litres and this is attributed to the lower fermentable sugar content of molasses.

Economics

According to Professor Mathur, the cost of production of alcohol (ethanol) in Indian distilleries is only slightly more than a rupee per liter. The very high market price is a reflection of the heavy taxes levied by the state Governments. The state governments may, therefore, be afraid of loosing the excise duty, if alcohol for fuel purposes is sold at its actual price. But this duty can be saved if excise duty is further increased in stages on alcohol for drinking purposes This way, the country can save oil import bill (for transport sector) up to 20 per cent now and in future, if alchol fully replaces petrol and diesel as vehicle fuel, there will be no oil import.

Secondly by using indigenous alcohol enormous waste of the country can be utilized. Sulphite liquor, for instance, an effluent of the paper industry now polluting many of our rivers, can be treated to recover a substantial amount of ethanol. Nepa mill alone wastes two lakh tonnes of sulphite liquor a year which if utilised can produce six million gallons of ethyl alcohol. There are 62 paper mills in the country. Similarly, our annual agricultural wastes, computed at 35 million tonnes, can easily yield 350 million gallons of ethanol.

Thirdly, by increasing efficiency of units producing alcohol from molasses, we can not only raise total alcohol production but also cut down its price substantially. According to the Central Molasses Board, the production rate in our distilleries could be improved to yield 300-350 liters per tonne of molasses instead of the present 200-240 litres. The country has 88 pure alcohol producing units, which together produced only 440 million litres of alcohol in 1977, whereas the 20.5 lakh tonnes of molasses available in the country that year could have actually yielded 514 million litres. Fourthly, sugarcane growers and sugar industry if given incentives, may help increase sugar and molasses production. Lastly, R & D work to solve technological problems of gasohol and popularisation of it, may bring this fuel in the public.

Potential for Sugar Industry in Punjab

(Continued from page 18)

were operating in Punjab from 1970-71 to 1979-80. Out of these four were in the cooperative sector and two run by private individuals|company. All the mills were operating in an efficient manner in general with the capacity utilization varying from 70 per cent at Dhuri to 92 per cent for Nawanshahar Sugar Mill.

Performance of Co-operative and Private Mills

It is generally believed that co-operative and the public sectors do not operate efficiently as compared to the private sector. But this argument seems to have been belied in the case of Punjab sugar mills. When assessed in the light of capacity utilization, recovery rate and length of working period it has been found that the sugar mills run by the co-operative societies are operated more efficiently than the those owned by the private individuals|company.

On an average co-operative sugar mills were much ahead in capacity utilization (88 per cent) than the private sugar mills (80 per cent) from 1970-71 to 1979-80 The percentage of recovery rate of sugar for the co-operative mills was 9.03 per cent as against 8.53 per cent for the private mills. Likewise, numbers of days worked on an average were 144 and 137 respectively for the co-operative and privatelyl managed sugar mills. From the foregoing discussion it can, thus be inferred that the co-operative sugar mills in Punnjab are operating more efficiently than those privately manneged. The working of co-operative sugar mills is better than private mills due to an obvious but typical situation in sugar industry. The interest of co-operative sugar mills is to maximise output. But the interest of the private mills lies in maximization of profits which can be achieved only by creating scarcity of sugar in the open market by having low production. It is, thus, more beneficial to set up sugar mills in cooperative sector than in private sector.

Acreage Under Cane

Wide fluctuations in the acreage under cane, have assumed grave dimensions recently and have always been a matter of great concern. The fluctuations stem primarily from the variability in relative price position. Since the acreage response of sugar cane is quite high with the present hike in the cane price (at Rs. 22—24) there are bright prospect for more area being brought under cane.

Even if the trend of sugarcane production of the last decade of 70's is allowed to continue, its production is expected to be 8047 thousand metric tonnes by the end of 1985. This will be 33 per cent more than the cane production in 1978-79. It can, therefore, be concluded that there exists tremendous scope for the expansion of sugar industry in Punjab in the near future.

Window on the World

Economic Development of United Arab Emirates

Zia Uddin Khairoowala*

THE United Arab Emirates is a federation of the seven states of Abu-Dhabi, Dubai, Sharjha, Fujairah, Ajman, Umm-al-Qaiwan and Rasal Khaima. Formed in 1971-72, it has borders with Qatar in the west and Oman in the east and a long frontier with Saudi Arabia in the south. According to the latest census report its population was 10,40,275 in 1980 as against 6,55,937 in 1975. Nearly 50 per cent of its population is of Indian and Pakistani origin of which Indians number about 2,00,000.

G.D.P.

The Gross Domestic Product of the UAE is estimated to be around 53.3 million Dhs at current facter cost. Mining, quary and extraction industries play a dominant role in the economy of the country by contributing around 57.2 per cent of the total GDP. The rest is contributed by construction, hotel and catering trade, transport, storage, communication, manufacturing industry, agriculture, forestry, fishing and other sectors.

Economic Background

UAE's economy is heavily dependent on its oil and gas reserves and on the large expartriate work force which currently represents some 75-86 per cent of the total population of around one million There are considerable disparities between the income and wealth of individual emirates, with the federation's most rapid development being cncentrated in Abu-Dhabi and Dubai, both of which have significant hydro-carbon reserves. Although Abu-Dhabi's reserves considerably outweigh those of Dubai, the later maintains its additional role of being a major trading centre in the gulf region. The other five emirates are significantly less wealthy than either Abu-Dhabi or Dubai. They depend heavily on federal funds for development. Among them Sharjah is, however an oil exporter with bright prospects for increase in income from this source. Most of the population in these five emirates is engaged on agriculture, fishing and exports consisting mainly of construction materials.

From 1974 to 1977, UAE's economic policy at both the federal and emirate levels was directed towards rapid economic development by utilising the country's large financial resources derived from rise in oil price. Particular emphasis was placed on upgrading the economic and social infrastructure. As a result public sector expenditure increased at an annual average rate of 72 per cent between 1973 and 1976. While the expansion policy stimulated real growth in the non-oil sector to an average of 20 per cent annually in 1974-77, it also led to over-heating in the economy and rate of inflation between 25 and 30 per cent per annum. UAE's financial stablility was also threatened by over-expansion in the banking sector. The number of banks operating in the country increased from 19 in May, 1973 to 52 in May 1977, and two of the smaller commercial banks were forced to close in mid 1977.

The authorities responded to these problems by adopting a less expansionary economic stance between 1977 and 1979. This policy reorientation slowed down the rate of economic growth and reduced the rate of inflation to an estimated 12 per cent in 1978.

Oil Economy

The Federation is the sixth largest crude oil producing country in West Asia. Its production in 1979 was 1.83 million barrels a day—2.8 per cent of world output and 6 per cent of OPEC production. Abu-Dhabi is the largest producer of oil with about 80 per cent of the Federation's output. At the current rate of production, reserves have an estimated life span of about 50 years.

Gas Production

Both Abu-Dhabi and Dubai produced 6.01 billion cubic metres of natural gas in 1979. At the current rate of production their gas reserves will last for 114 years. Abu-Dhabi accounts for around 64 per cent of the Federation's gas reserves and 93 per cent of its gas prouction. UAE's export earnings from gas were estimated at US$350 million in 1980, because of new pricing system which links the prices of gas to that of crude oil.

Agricultural Sector

The UAE has a very small agricultural secfor accounting for around one per cent of gross domestic product, (GDP). It has been reported by the Agriculture Ministry that the development of agriculture will increase at the rate of 8 per cent. The major food producing area is Ras-al-Khaimah. Elsewhere paucity of water is the main factor inhibiting the development of agriculture. Being increasingly concerned over its heavy dependence on food imports, the Government of UAE has attached considerable importance to the development of crops suited to local agro-climatic conditions. Greater efforts are being made to increase water supplies through the construction of dams and extension of area under agriculture by about 10 per cent annually, mostly in Ras-al-Khaima, along the east coast and around the inland Oasis towns of Al'Ain and Dayadh. However there are bleak prospects of UAE approaching self-sufficiency in food in the forseeable future.

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*Asstt. Professor of Commerce, New Collge, Madras

Fishing

Since the discovery of oil, fishing industry has suffered a set-back because the wealth of the rapidly growing cities of Abu Dhabi and Dubai has attracted the local fishing communities. Nevertheless, a recent fishing survey by the United Nation has observed that fish production in the region could be doubled because of enormous potential stock in the Gulf water. A national plan on fisheries is currently being formulated to provide incentive to develop this industry.

Industrial Scene

The UAE economy has in the past been characterised by the absence of any formal development planning. However the UAE Government now proposes to draw up a comprehensive industrial development plan for 1981-85. The plan is likely to attach considerable importance to industrial development in order to diversify the country's sources of income.

The UAE plans to have seven cement factories. Construction of some of these has already been completed. An explosives plant and an industrial area are also proposed to be set up near the deep water port of Khar Khawair.

At present the UAE is in the process of introducing the latest electronic equipment in its telephone exchange offering new facilities to subscribers. A computer based Stored Programme Control (SPC) system is designed especially for telephones with an investment of 72 million Dha. This will add 4,500 lines to the existing 1,20,000 lines.

Exports and Imports

The total export earnings of by-products in 1979 was Dha 238 4 million—8.1 per cent of the total exports. Of this manufacturing export accounted for 7.8 per cent, scrap metal and dry fish 0.2 per cent and 0.1 per cent respectively.

The domestic export and re-export during 1979 stood at Dha 2,706.3 million and formed 91.3 per cent of the total exports. Of these manufactures accounted for 31.7 per cent, machinery and transport equipment 28.2 per cent, food drinks and tobacco 25.1 per cent and other goods 6.3 per cent. This shows the improving trend in the economic development of the Federation.

The UAE imports mainly heavy machinery and transport equipment to develop its economy. Its largest import trading partners are Japan, UK and USA which together accounted for 45.2 per cent of the total imports in 1979. The rest 55 per cent was shared by West Germany, Bahrain, France and other countries. This shows that the UAE has imported all the goods from the most developed markets to grow up with them.

Balance of Payments

The exports from United Arab Emirates increased from US $ 9,832 million in 1978 to US s 22,626 million in 1980, while the imports increased from US $ 5,365 million to US $ 9,565 million during the same period. This resulted in a surplus of US $ 4,467 million in 1978 and US $ 13,047 million in 1980.

Economic Outlook

The outlook for the hydrocarbon producing Emirates especially Abu-Dhabi, is undoubtedly brighter than the Northern Emirates. However, the agreement by Abu-Dhabi and Dubai to allocate 50 per cent of their oil revenues to the federal budget should result in a broader distribution of economic development throughout UAE.

Oil revenue will continue as the main source of economic growth in the medium term although the income from gas should steadily become more important. It is likely that world oil prices will at least maintain the existing real levels in the medium term and the UAE will thus continue to record substantial surpluses on both trade and current accounts, even if the authorities maintain their oil conservation policy.

For a Longer term utilisation of hydro-carbon reserves, the UAE has already established an IFCI :total Rs. 770.97 crore Rajasthan Rs. 44.37 crore: infrastructural base and made some progress towards developing industrial sector. The diversification of income sources is likely to be one of the major objectives of the proposed development plan for 1981-85, which is expected to give high priority to industrial development.

Why is Rajasthan Back ward ?

(Continued from page 7)

The State posses large deposits of copper and zinc and carrying the ore to longer distance would have not been economically viable and there was no other way out but to set up the processing units in Rajasthan itself.

All-India financial agencies too are equally shy in sanctioning projects for Rajasthan. The State government has been drawing Centre's attention towards this fact for a pretty long time. Investment by some of the investing agencies till March 31, 1980, in the country and Rajasthan's share in the same stood as this—IDBI : total investment Rs. 3374.41 crore, Rajasthan's share Rs. 133.35 crore ICICI : total Rs. 1296.80 crore, Rajasthan Rs. 34.11 crore : IFCI : total Rs. 770.97 crore Rajasthan Rs. 44.37 crore; LIC : total Rs. 2298.43 crore. Rajasthan 113.56 crore. Industrialists and various State developmental agencies complain of non-clearing of applications from Rajasthan resulting in non-implementation of a number of projects at stipulated time.

Nineteen years ago, we set about identifying areas of cooperation, creating suitable frame-work for skills and finance...

today, with 10 crore members, the cooperative sector benefits more than half of the nation's population

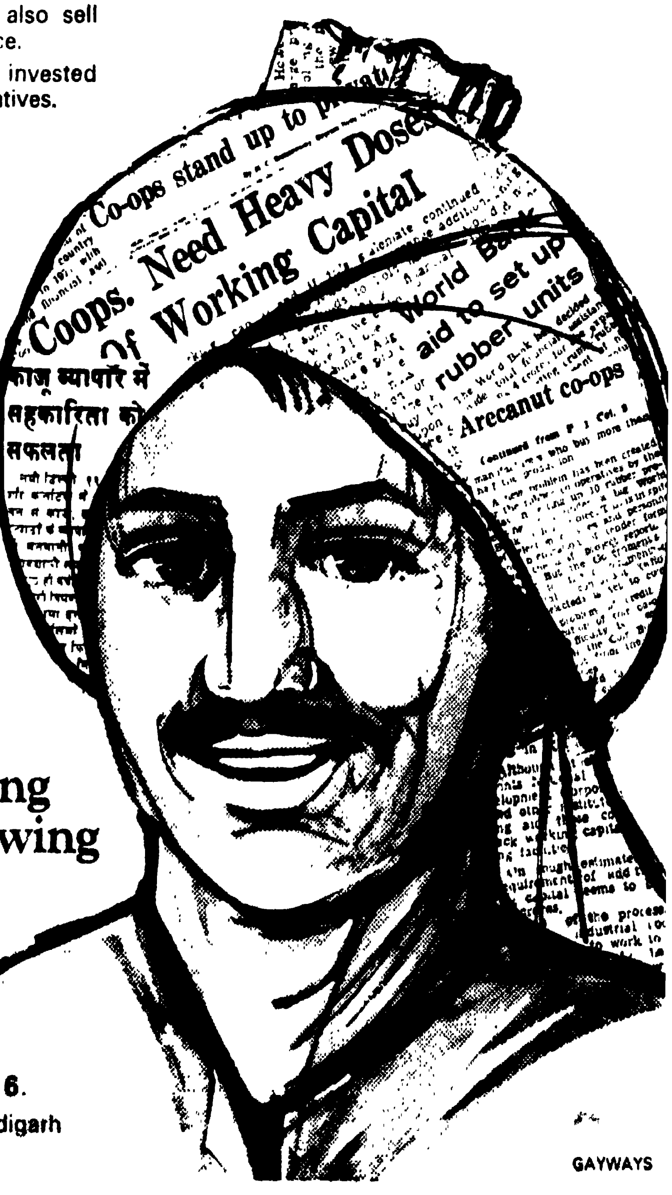
The value of operations of all types of cooperatives is in excess of Rs. 16000 crore. These figures, however, cannot indicate the tremendous social gains that have accrued to the poorer sections of the community.

With increased marketing of farm-produce, cooperatives are trying to ensure a remunerative price to the producer, eliminating the middlemen, who corner the bulk of profits for themselves. The supply of agricultural inputs and other essential consumer commodities by village cooperatives at fair prices at the door-steps of the farmers is a boon to them.

NCDC has played a pivotal role in uplifting the weaker sections during the last few years, particularly the fishermen, handloom weavers and tribals. The Corporation has been speeding up its programmes to provide financial and technical assistance to the farmers, in diverse fields, from agro-processing to distribution of fertilisers, from marketing of agricultural crops to promoting giants like IFFCO, NAFED and NHEC. Already in operation are plans to set up a rural growth centre in every village. At this centre "under one roof" the farmers would be able to secure all their farm requirements, buy essential consumer items, avail of credit facilities and also sell their agricultural produce.

NCDC has, so far, invested Rs. 425 crore in cooperatives.

With an outlay of Rs. 80 crore slated for this year and more to come, we are well on our way to reaching our goals.


Co-ops stand up to
Coops. Need Heavy Dose Of Working Capital
World Bank aid to set up rubber units
Arecanut co-ops
सहकारिता

NCDC Our goal of promoting cooperatives is a growing national investment

NATIONAL COOPERATIVE DEVELOPMENT CORPORATION
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● Gauhati ● Jaipur ● Lucknow ● Poona

GAYWAYS

Supply of Pure Water Problems and Solutions

P. Bhattacharya*

THE global scarcity of pure water is not because of any overall shortage of moisture on the earth or any deviation in the hydrological cycle. The real cause lies in population growth and the concomitant economic activities.

Water resources of the earth are limited. Fresh water forms just two per cent of this limited stock. Each man needs two litres of water a day for drinking. But he also needs water for washing and cooking. According to the calculations by hygienists, an individual living in a city needs at least 200 litres of water every day.

Problem of Developing Countries

The industrialised nations of the West have just begun to experience the shortage of water. But the people of many developing countries have already been experiencing this shortage for decades. According to the World Health Organisation (WHO) more than 1,000 million people of the developing countries do not get sufficient amount of good quality water even for drinking. About 80 per cent of diseases in the developing countries are caused by the contaminated water as sufficient facilities for purification and disinfection are absent.

Main Causes

The main causes for the shortage of fresh water today are the growth of industry, irrigated farming and rapid urbanisation. The problem is no longer limited to the amount of water being consumed by man, but how much water is returned to the sources—the lakes and rivers—and in what condition.

Industries have been dumping their wastes indiscriminately into the water sources By 1980 the amount of polluted water, growing constantly, reached the terrifying extent of 600,000 million cu.m. a year. At the same time these industries have been consuming fresh waters in ever-increasing quantities. Irrigated farming is also one of the main users of water. But considerable portion of the water gets lost due to seepage. Growing cities are one of the main consumers of water sources. After consumption this water returns as sewage. The dilution of sewage with fresh water in the proportion of 1 : 6 to 12 in order to reduce the concentration of various substances to the permissible standard for industrial intake is widely practised throughout the world. At this rate, all river water resources in the world will be spent for diluting sewage by as early as the end of this century. Let us see how these problems are being tackled in the Soviet Union.

Water Recycling

The Soviet Union uses water recycling along with purification processes. However, the emphasis is on recycling as a transitional stage towards waste-free technology. Besides, the purification processes are becoming very costly with each passing year. The Soviet Union already recycles more than 70 per cent of the fresh water used in its industry. In another four years it will grow to at least 85 per cent. That will be a considerable achievement towards reducing the intake of fresh water by industry.

The main aim, however, is to develop waste-free technology besides completely closed water circulation system. The ecological and economic benefits of the closed-cycle systems are obvious : there is no need to water intake and sewerage system also deccreases. According to expert estimates water recycling introduced in the nitrogen fertiliser industry will reduce the expenditure on water supply system by 70 per cent. The Magnitogorsk industrial centre, one of the biggest in the Soviet Union, for instance, provides a characteristic example in this respect. It only uses more than six million cu.m. of water for industrial and community purposes. But the proportion of the intake of fresh water from the river Ural for the purpose is only a little more than 10 per cent of this amount.

Moscow also provides another notable example. It is the first city in the world which uses more than 600 million cu.m. of water every day and discharges the same amount into the river Moskva clean and pure after purification. Automatic monitoring stations continue to check the quality of water day and night.

Complex Systems

The Soviet Union has also taken various measures to stop the discharge of pollutants in the important rivers like Volga and Ural. It has further been constantly perfecting a complex system by which depletion of water resources in particular rivers of areas might be made up from surplus areas through a network of reservoirs and canals. Soviet experts are now going into the details of an unprecedented plan of diverting a part of the mighty Siberian rivers Yeneisi and Ol Kazakhstan.

The Soviet scientists are ever engaged in research to find out newer methods of purifying water. For instance, Institute of Colloidal Chemistry and Chemistry of Water of the Ukrainian Academy of Sciences has developed a system by which fresh water is derived from heavily mineralised water present in every coal field. The salts mixed with water are also recovered to commercial level.

Prevention of Seepage

Soviet achievements in preventing irrigational seepage are also equally impressive and very relevant for India. Directional use of explosion which the Soviet experts use so effectively to cut down both the time and expenditure for excavation work and digging of canals lessen the problem of filtration from the beginning. Besides, new irrigation systems are provided with closed pipelines, ferro concrete chutes and water--tight covers. Whatever may be the quality of the intermediate channels, considerable loss of water can not be prevented unless the conventional method of forrow irrigation is improved. Therefore, a system of sub-soil irrigation has been developed. In the simplified form, it means tubes buried in soil to a definite depth. Water moisters the layer of the roots through the openings in the tube.

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*Information Department of USSR Embassy.

India is already one of the top industrial countries of the world. Further, it is also going to modernise its irrigation system in a big way. Under the Long-terms Programme of Cooperation signed between India and the USSR in March 1979, there is tremendous scope for still closer cooperation in protection of water sources. Under a protocol signed this year in pursuance of the Long-term Programme the Soviet Union will provide assistance to construct canals using the technique of directional blasting, to build dams and to set up a major factory to produce lining materials for canals.

Soil and Water Management

IN the Fourth Five Year Plan, the Government of India decided to set up pilot projects on soil and water management in some of the command areas of major and medium irrigation projects. The objective was to provide the farmers within the command areas with the knowledge of scientific soil and water management techniques.

The Planning Commission during 1978-80 evaluated seven pilot projects, namely West Gandak (UP), East Gandak (Bihar), Mahanandi Delta (Orissa), Neyyar (Kerala), Pochampad (AP), Ukai Kakrapar (Gujarat) and Navalgund (Karnataka).

The commission studied the strategy evolved, organisational aspects, the problems of coordination and the impact of the programme on the farmers. The projects taken up in different States lacked uniformity in the formulation of schemes and their budget. They also differed in the soil and agronomic conditions. So the case study method for evaluation of these projects was adopted. The study was conducted in two rounds in 1978-79 and 1979-80 providing thus data for two periods.

The evaluation study as presented here highlights the significance of a comprehensive approach to the problem of soil and water management in order to achieve efficiency in conveyance of water to the fields, scientific application of water to the crops and the adoption of such cropping pattern that would confer maximum benefit to the cultivators. Here are the strong and weak points in the working of these projects.

Merits

Cultivators in the soil and water management projects had switched over to canal irrigation and had adopted irrigation intensive crops with the availability of canal water in sufficient quantity. Also, they have taken to the raising of high yielding varieties and a few commercial crops. The process of modernisation in agriculture is thus taking place. There was an all round increase in yield on account of the availability of irrigation in Rabi season. Employment opportunities availed by the beneficiaries, both in terms of family labour and hired labour, showed general improvement in most of the projects. The beneficiaries had also acquired some assets like milch cattle, improved agricultural implements, etc. The availability of irrigation and carrying out of land improvements have played an important role in increasing the value of land in some of these projects

Weaknesses

The Ministry of Agriculture and Irrigation did not seem to have drawn up any schematic budget or laid down the necessary guidelines in regard to the pattern of expenditure to be incurred on development work and establishment.

The percentage of expenditure on development work to that of total expenditure on the pilot projects varied from 19.41 to 44.88 only. Expenditure on staff was in all projects more than that on developmental works. Delay in posting of qualified and experienced staff had adversely affected the completion of works within the time schedule. In almost all cases, the term of the projects had to be extended on this account. Frequent transfers of officers had also disturbed their continuity and affected the completion of the projects adversely. Though there was evidence of increase in intensity of irrigation in almost all the projects, utilisation of the potential had not been upto the level envisaged. The need for taking up different types of surveys was recognised by all the project authorities for determining the most suitable pattern for the ayacut, formulation of schmes for land levelling and shaping, water distribution and drainage beyond the outlets. No research had yet been done in the selected Pilot Projects so as to recommend to the cultivators, the most suitable cropping pattern for adoption in the area. In some of the projects, no specific strategy in regard to 'one farm development works' seemed to have been evolved, which could be recommended to Command Area Development Authority for wider adoption in its area. Lack of proper water distribution system in many projects and inadequate drainage facilities had resulted in water logging and soil erosion. In many of the projects, there were no arrangements for the maintenance and upkeep of works constructed by the project authorities, Periodical review and proper monitoring of the Project activities was lacking.

From the Evaluation Report on Soil and Water Management Pilot Projects

STEP BY STEP

Polymer Membranes For Treatment of Industrial Waste

REVERSE osmosis (RO) membranes useful in the treatment of industrial effluents have been prepared by using indigenously available cellulose tricetate in place of the conventional cellulose diacetate membranes.

A salient feature of the preparation of the RO membrane is the elimination of heat treatment. The membrane is capable of giving salt rejection of about 95 per cent. The performance of the cellulose tricetate membranes in the treatment of effluents from industries like electroplating, fertilizer and textile has been found satisfactory.

The researcher is Shri Jagdish kumar D. Nirmal, a CSIR research fellow, who worked on the project at the Central Salt and Marine Chemical Research Institute Bhavnagar.

INTERNATIONAL SAFETY AWARD FOR NFL

THE Nangal Unit of the National Fertilizers Limited has won the Safety Award of the National Safety Council of U.S.A. for its outstanding safety performance in 1979. The Award which relates to the Fertilizer Section Safety Contest has been conferred on the Unit in recognition of its lowest incidence rates of accidents as compared to other member organizations of the U.S. Safety Council.

BREEDING TIGER PRAWN

SCIENTISTS of the Central Marine Fisheries Research Institute's experimental laboratory at Kovalam near Madras have succeeded in breeding the tiger prawn and rearing the larvae to stocking size for the first time.

The tiger prawn (Penaeus Monodon) is high-priced species much in demand for export. But its production from the marine capture fisheries is very low compared to other penaeid prawns. The experimental laboratory at Kovalam is being developed into a full-fledged hatchery for large scale production of the seed of tiger prawn. ☐

A fully grown cardamom plant

SIKKIM EXCELS IN LARGE CARDAMOM

FOUR thousand farmers of Sikkim cultivating 20,000 acres of land, are producing nearly 2,000 tons of large cardamom. This represents 70 per cent of India's output; the remaining 30 per cent is contributed by Assam and West Bengal.

As a first step towards finding foreign markets for the large cardamom, the Ministry of Commerce has decided to set up a Research and Development Institute at Panthang, near Gangtok.

Indo-USSR Troposcatter Link

THE Prime Minister Smt. Indira Gandhi inaugurated the Indo-USSR Troposcatter Communication Link on November 2. This troposcatter link provides a reliable, round-the-clock, high-quality transmission medium for telecommunication services between India and the USSR. The tropo system has a capacity of 12 telephone channels at present, which can be augmented to 24 channels, with corresponding increase in transmitter power, if required, to meet the growth in traffic in course of time. Telephone, telex and telegraph services can be provided on the tropo system.

Disability is no inability for them. On account of Government, the physically disabled persons are getting limbs, to stand on their own feet. A polio patient with the help of a bank (right). A physically handcapped various schemes launched and implemented by the vocational training, financial assistance and artificial is earning a livelihood by opening a pan shop person is driving a motor vehicle (left).

National Awards For Welfare Work Done For Handicapped

THE Government of India have instituted two National Awards for work done for the cause of the handicapped. The cash component of the Award is Rs. 25,000 in the case of an individual awardee and Rs. 1,00,000 in the case of an institution.

The institutions competing for the award should be voluntary in nature. Government-aided institutions also will be eligible for the award. The criterion for selection will be the quality and extent of work performed by the individual or the institution for the cause of the handicapped.

HOMES FOR MENTALLY RETARDED

THE Madhya Pradesh Government has decided to open two more homes for mentally retarded children at Jabalpur and Raipur during the International Year for the Disabled. At present, there is only one government institution of this type at Indore. Mentally retarted children of parents with income of less than Rs. 500 p.m. will get education free of cost at these institutions. Each school will admit 50 students and will have hostel facilities for 25

Ministry of Home Affairs

AS many as 95 physically handicapped persons were working in the Ministry of Home Affairs and various offices under its administrative control upto the end of 1980. As a result of the special drive launched during the current year for the rehabilitation of the physically handicapped, seven more disabled persons including one blind person have been appointed in the various offices of the Ministry. Besides, offers of appointment have already been sent to one blind person and one orthopaedically handicapped person. All re-caning jobs are being entrusted to the blind persons only.

Efforts for the rehabilitation of disabled persons are still continuing and various offices of the Ministry have been instructed to accommodate as many disabled persons as possible in the posts suitable for them. ☐

Review article

Rural India

C. N. S. Nair*

THESE monographs and reports** mainly relate to some case studies undertaken by the Centre for Management in Agriculture, Indian Institute of Management Ahmedabad. The monograph on the impact of scarcity on farm economy and the relevance of relief operations is based on a field study in the Dhandhuka taluka of Gujarat. This is a chronically drought-affected area, with an average normal rainfall of 600 mm. In 6 out of 10 years prior to the reference period of this study, the rainfall was well below the normal level. In three years, it was less than half. This monograph provides a profile of the area giving the demographic features and cropping pattern. The reference year for the study was 1974-75. The study focussed attention on the impact of drought on crop yeld, employment and income. The main conclusion of the study is that technological stagnation is responsible for persistent low level of agricultural development in this area. While high yielding varieties of cotton and wheat have replaced traditional varieties elsewhere in Gujarat, the traditional varieties continued to be prevalent in Dhandhuka taluka. The authors of the study recommend that appropriate technologies should be evolved to suit the agro-climatic environment of drought-prone areas. It has also been established by the study that, ultimately, a larger proportion of the local population will have to be enabled to take up employment outside agriculture in a drought-prone area. Unexceptionable as these conclusions are, what has not emerged is a workable policy and action programme for accelerating the pace of relevant technology transfer and provision of adequate non-farm employment opportunities for reducing the dependence of the rural population on land in such an area.

Group Lending

The second monograph is an innovative study based on an emprical analysis of group lending by one branch of a nationalised bank in Mehboobnagar district of Andhra Pradesh. Though, conceptually, group lending has certain advantages through lower administrative costs etc., this innovation has not made any significant headway in India. The study recommends that this project would be successful if the potential borrowers under this arrangement are drawn from a homogeneous background. It has been indicated that flexible interest rate policies should also enhance the probability of achieving innovative features of this scheme. Currently, a number of credit-linked rural development programmes are under implementation in every Development Block in the country and it is a common experience that the poorest elements in the target group of beneficiaries under these programmes fail to get adequate loans from the banking institutions. Agricultural labourers and persons belonging to scheduled castes find it difficult to obtain substantial loans. It would be advantageous to organise such homogeneous economic groups for group lending purposes. However, organisational inputs for this purpose are lacking and group lending is not making much progress in most parts of the country. While the study has pointed out the procedural difficulties etc., it has not looked at the organisational aspects from the borrowers' point of view. Until these issues are taken care of, group-lending is unlikely to make any significant headway in the country.

Plant Protection Apliances

The monograph on marketing of plant protection appliances gives a survey of major plant protection equipments produced and used in the country as a whole and in the state of Gujarat in particular. The study has brought out the constraints on increased ownership and use of plant protection equipments by farmers. The study has not revealed any startling facts. Farmers with bigger land holdings tend to own plant protection equipments. Those who have larger holdings generally hired out their equipment to others and hired manpower for operating their equipment. The users of plant protection equipment were literate and mostly members of cooperative societies. The monograph also contains an exhaustive survey of constraints in plant protection practices including lack of availability of equipments of the preferred kind, inadequate credit and insufficient supplies of pesticides. Another limiting factor was the difficulty in getting plant protection equipment repaired and maintained. On the whole farmers preferred to use manually operated appliances. Like progress in agricultural itself, there is a concentration of plant protection equipment machinery in a few states.

Non-Wood Forests

The survey of non-wood forest products in India throws light on a number of interesting factors. This survey covers a very wide range of plant species producing essential oils, non-edible oils, tans and dyes, gums and resins etc. The current economic and social significance of these forest products and their potential for the future have been examined. The survey has highlighted the fact that the contribution

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1. Impact of sacrcity on farm economy and significance of relief operations—By Gunvang Desai, Gurdev Singh and D. C. Shah, pages 140.

2. Group lending innovation for rural areas—a pilot study—by D. S. Desai, pages 35.

3. Use and marketing of plant protection appliances—by G. A. Patel, K. R. Pichchol'a and C. Gopinath, pages 151.

4. Non-wood Forest Products in India—economic potentials—by Tirath Gupta and Amar Guleria, pages 182.

5. Some Economic and Management Aspects of non-wood products in India—Tendu Leaves—by Tirath Gupta and Amar Guleria, pages 177.

All these five books are published by Indian Institute of Management, Ahmedabad. Prices not mentioned.

of forestry sector to gross domestic product has been extremely low in spite of the fact that forests account for 23 per cent of the country's geographical area and 50 per cent of the cultivated area. Virtually no studies have been conducted on the employment potential and income generation potential of the minor forest produce. The survey recognises the need for identifying certain norms to regulate gathering of minor forest produce. In the context of denudation of forests and conversion of forest land into agricultural land, this survey throws useful light on a number of aspects of forest management and draws attention to the need for having a policy to maximise benefits from the rich range of minor forest produce.

Tendu Leaf

The last volume refers to a single minor forest produce viz. tendu leaves. The study goes into the economic and social significance of tendu leaves, current management practices for tendu-leave trade in different states, and steps to be adopted for improving the management of this resource. The study concentrates mainly on Orissa and Maharashtra, two major tendu leave producing states. While the price of tendu leaves has been going up, the output seems to have been fluctuating very widely and in some cases, it has actually declined. The revenues to the states from Tendu leaves have not been increasing in spite of the rising prices on account of the escalation in administrative costs. The administration of marketing arrangements for tendu leaves leaves much to be desired. About 20 per cent of the annual produce seems to be smuggled out. The study recommends that production and marketing should be entrusted to the same agency. In order to improve the administration of tendu leaves, it has been suggested that the revenues from this source should be shared with local bodies. The study has highlighted the need for inter-state coordination for standardising the management practices. On the whole, this volume is a definitive work on every aspect of the administration of tendu leaves—production, marketing etc.

Fishing Harbour Projects—An Evaluation

THE Programme Evaluation Organisation (PFO) of the Planning Commission has suggested substantive measures to check time and cost over-runs and to ensure efficient implementation of fishing harbour projects. In its evaluation report on the projects the PEO has recommended steps to check increasing hold of middlemen on small fishermen by integrating credit with marketing and supply of extension services, to provide adequate financial support to traditional fishermen for increased mechanization of boats and thus channelise benefits to them in the shape of better employment earnings, and acquisition of assets.

The study conducted by the PEO during 1979-80 at the instance of Ministry of Agriculture and Rural Reconstruction related to five fishing harbour projects. These are two major harbours of Cochin (Kerala) and Visakhapatnam (Andhra Pradesh), and three minor harbours of Karwar (Karnataka), Port Blair (Andaman and Nicobar Islands) and Tuticorin (Tamil Nadu). According to the evaluation report, Cochin, Karwar and Visakhapatnam harbours were being fully utilised, even beyond their targetted capacities. The Tuticorin shiping harbour had still to attain its capacity and Port Blair Harbour remained unutilised due to lack of necessary infrastructure.

In regard to project implementation there was time over-run varying from 24 months to 76 months in construction resulting in price escalation and revision of estimates. The actual expenditure incurred on the completion of selected fishing harbours shows that there was cost over-run varying from 34 per cent in the case of Cochin to as high as 177 per cent in the case of Port Blair.

In different selected harbours (excluding Port Blair) there was an increase in the number of mechanised boats ranging from 94 per cent to 410 per cent. Consequently, fish landings had also increased to a considerable extent. There was a sizeable rise in the exports of marine products ranging from 22 per cent to 99 per cent.

After switching over to mechainsed fishing, the increase in employment per catch had been observed to be varying from 31 per cent to 100 per cent at different harbours. The selected mechanised boat owners had reported rise in their monthly income from 255 per cent to 635 per cent during the year 1979-80 as a result of the harbour facilities so created.

Among measures suggested by the PEO to improve the efficiency is the setting up of a separate administrative authority for planning, construction, supervision and running of the fishing harbours. This authority, according to the report, should also be entrusted with responsibility of registration of boats and maintenance of statistics relating to operation of boats, speciewise landing of fish catches, price and marketing intelligence.

The report stresses the need for providing integrated credit service to fishermen so as to link credit with marketing of fish catches in order to eliminate middlemen or commission agents. It was observed, says the report, that with the increased operational activities of the mechanised boats and trawlers near the coastline the condition of traditional fishermen had been adversely affected in terms of fish catch and earnings. It is necessary that the areas for traditional boats, mechanised boats and deep-sea vessels be clearly demarcated. The State Governments should be urged to enforce fishing zone by bringing about necessary legislation. Fish landing facility and auction centres should also be set up for traditional fishermen in the form of mini fishing harbours, at suitable locations to ensure remunerative prices of their fish catches.

The report underlines the need for the development of specific programme to help the traditional fishermen who are among the rural poor. It says that fishermen should be enabled to acquire traditional boats under schemes like those of self-employment from commercial banks etc. There is need for fishery extension organisation responsible for carrying out training activities to enable the traditional fishermen to adopt marine fish handling and processing techniques for a better quality control, says the evaluation report.

BOOKS

Two Asian Giants

India China : Comparative Research, Edited by Erik Beak & Jon Sigurdson, Curzon Press Ltd. London, Pages 154, Price £4

INDIA and China are the two big developing countries having vast, huge untapped, natural and manpower resources. These two giants are experiencing the effects of technology and science on the growth, and development. Hence, comparative research on India and China is inevitable. This book attempts to study the role of technology and science in the development process of these two countries.

The book under review is a collection of seven outstanding papers contributed by eminent scholars of the field to a symposium held at Lund in 1978 on the application and effects of technology and science to the development process in India and China. It contains five specialised papers and two bibliographical papers. These papers reveal original and forthright views on some of the important issues of technology and science like self-reliance versus modernisation, policy option, local technology systems and the growth and development of the Instruments sector. The book also gives an excellent extensive survey and methodology of comparative research in India and China This volume includes only those papers which are of comparative nature and outlook on methodological questions.

On the whole, this is a short, crisp, eminently written and thought provoking book.

Dr Badar Alam Iqbal

Means of Development

The Public Sector—An Effective Means of Development by V. Kolesov, Sterling Publishers, New Delhi, Pages 213; price Rs. 60.

THE public sector enterprises have become instruments of attaining the national objectives. Most of the countries having socialistic aims have taken recourse to the setting up of public enterprises for their entry into various fields of business and also for distribution of essential commodities to the society. In some of the countries the public sector has already attained a commanding height while in others it is in its infancy.

As is well known, all the countries—developed or developing—are today confronted with the basic economic problems of choice. The means being limited, the policy makers are left with the task of choosing between different systems to ensure maximum benefits to the largest numbers. This consideration has made the public sector to play an important dole in the present day developmental activities of the developing nations. With ever-increasing socio-economic problems in every society, the public sector is today confronted with more complicated issues connected with men, machines and the societies as this sector is serving as an instrument for a state to achieve its socio-economic goals. The book under review tries to analyse these aspects of the roles being played by the public sector and it "aims to show", as it is mentioned in the introduction of the volume, "the stages of its formation, analyse its socio-economic nature in the countries of different political orientation, and to explain its position in the economy and its role in coping with the key task of economic development in the liberated countries".

The book is divided into three parts. The first part is on the evolution of the public sector in the developing countries, the second part is concerned with the public sector as an instrument for promotion and achievement of national objectives and the third one is on the functioning of public sector and its relationship with different government agencies under different economic systems.

If the studying of the public sector and analysing its socio-economic effect and role in different forms of economic systems in the developing nations are the main objectives of this book. the author has succeeded in a great measure. The publication contains a good deal of analyses of the public enterprises in different economic systems which are of immense relevance in the present-day context.

The book is mainly based on the study of public enterprises in socialists States and many of the examples cited relate either to the public sector in India or the Soviet Union. The reason for this is that the public enterprises can thrive and play this role only under a socialist systems. The book would surely be of interest to the socialistic readers. However, for the general readers, the author could have made use of some space fruitfully to discuss the historical evolution and the functioning of public enterprises under the capitalist economies. This could have provided a comparative picture of functioning of public sector in the two major economic systems.

Although the book does not claim to be comprehensive in the discussion of all the issues connected with the public sector, it contains interesting reading material to understand the role of public enterprises in developing nations. The contents of the book make it a valuable addition to any library.

S. Banerjee

Fertiliser and Industry

Fertilizer Industry Deskbook—1980, Published by Technical Press Publications, Bombay, Price Rs. 95.

THE voluminous issue of Chemical Age of India is quite informative. Thought-provoking, instructive and exhaustive articles on various aspects of fertiliser, such as production, storage, energy problems, pollution and new technologies are included in it. With neatly arranged topic-wise chapters, the book is certainly useful to all those involved in the planning, production and consumption of fertilisers.

R. R. Rao

Shri Narayan Dutt Tiwari, Minister of Industry and Labour, inaugurating the National Convention on Small scale Industries, at New Delhi. Shri Mohammed Fazal, Member, Planning Commission delivered the keynote address.

Steps to Aid Small Scale Sector

TO accelerate development of small-scale industries, a carefully worked-out time-bound programme for ancillary development is being drawn up with a view to ensure further dispersal of industries and growth of entrepreneurship.

Shri Mohammad Fazal, Member Planning Commission said this in his keynote address at the Convention of Small Industries, organised by the Federation of Associations of Small Scale Industries of India in New Delhi, recently.

A programme to establish nucleus plants in industrially backward districts has been taken up to generate a spreadout network of small-scale industries. Efforts would also be made to persuade large-scale producers to off-load production of parts and components to ancillary units. The Sixth Five Year Plan provides a package of measures alongwith financing arrangement to achieve the projected growth rate in this sector. A programme of modernisation of selected industries has been taken up with a view to creating an awareness and identifying the problems of productive efficiency.

Shri Fazal also said that under the Sixth Plan the value of output of small-scale industries was expected to rise from Rs. 21,635 crores in 1979-80 to Rs. 32,873 crores in 1984-85. The employment in this sector was expected to go up from 67 lakh to 89 lakh persons, and exports from Rs. 1,050 crores to Rs. 1,850 crores during the plan period.

Referring to concessions, Shri Fazal said that 834 items had been reserved for exclusive production in the small-sector. The products of the small-scale sector were also given price preference in Government purchases upto 15 per cent over those of the organised sector. More items were being identified for exclusive purchase from the small-scale industries. It had also been decided to have graded reservation lists for purchases from the small-scale sector, the items to be identified, on the basis of production and supply capabilities of the small scale units and the actual supplies made by them in the recent past.

The Union Minister for Industry and Labour, Shri Narayan Datt Tiwari in his inaugural address, urged the Federation of Association of Small Scale Industries to improve the quality of their products so that they conform to international specifications at competitive prices. Shri Tiwari hoped that the small scale sector would be quick to grasp the opportunity provided by off-loading production capacities of large scale plants to ancillary units and help decentralisation of industrial development of the country.

The Minister said that the District Industries Centre Programme had been revamped and given a project orientation.

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Miss Kumudben Joshi Deputy Minister of Information and Broadcasting presented bundle of books to an educated and unemployed lady at the inaugural Function of the Pilot Project (left) Shri D. S. Mehta Director of Publications Division is seen addressing the gathering at the inaugural function

Sale of Books by Unemployed Youth and Students

THE first pilot project to involve youth and students in the country to sell books brought out by Government Departments and Public Sector Undertakings was inaugurated in Madras recently by Miss Kumudben Joshi, Deputy Minister of Information and Broadcasting. Organised by the Publications Division of the Ministry of Information and Broadcasting, the project is not only intended to provide gainful employment opportunities to the youth in Madras city but also to make publications available to the cross-section of the community.

Initially twentyfive unemployed youth and students including some disabled persons have been selected. Each one gets 25 per cent as commission on the books sold.

Mammoth Tree Plantation Programme

TWO lakh fifty thousand hectares of land will be planted with trees every year during the Sixth Five Year Plan. A programme to this effect has been finalised by the Planning Commission. This was disclosed by Shri Bhishma Narain Singh, Minister of Works and Housing, recently while releasing a set of special postage stamps depicting four typical Indian flowering trees.

The Minister commended the example of Gujarat farmers who had discovered that even their unirrigated, parched and saline lands could yield greater wealth in the form of fuel wood which was even more scarce than food. This year alone, Gujarat farmers were planting some 15 crores of trees over an area of two lakh hectares. This was more than the acreage expected to be covered by the tree planting campaign in the rest of the country, he added.

The United Nations experts had warned that by the turn of the century India and other developing countries might have enough food to eat but hardly any fuel to cook unless they increased by 25 to 50 times their present rate of tree plantation. □

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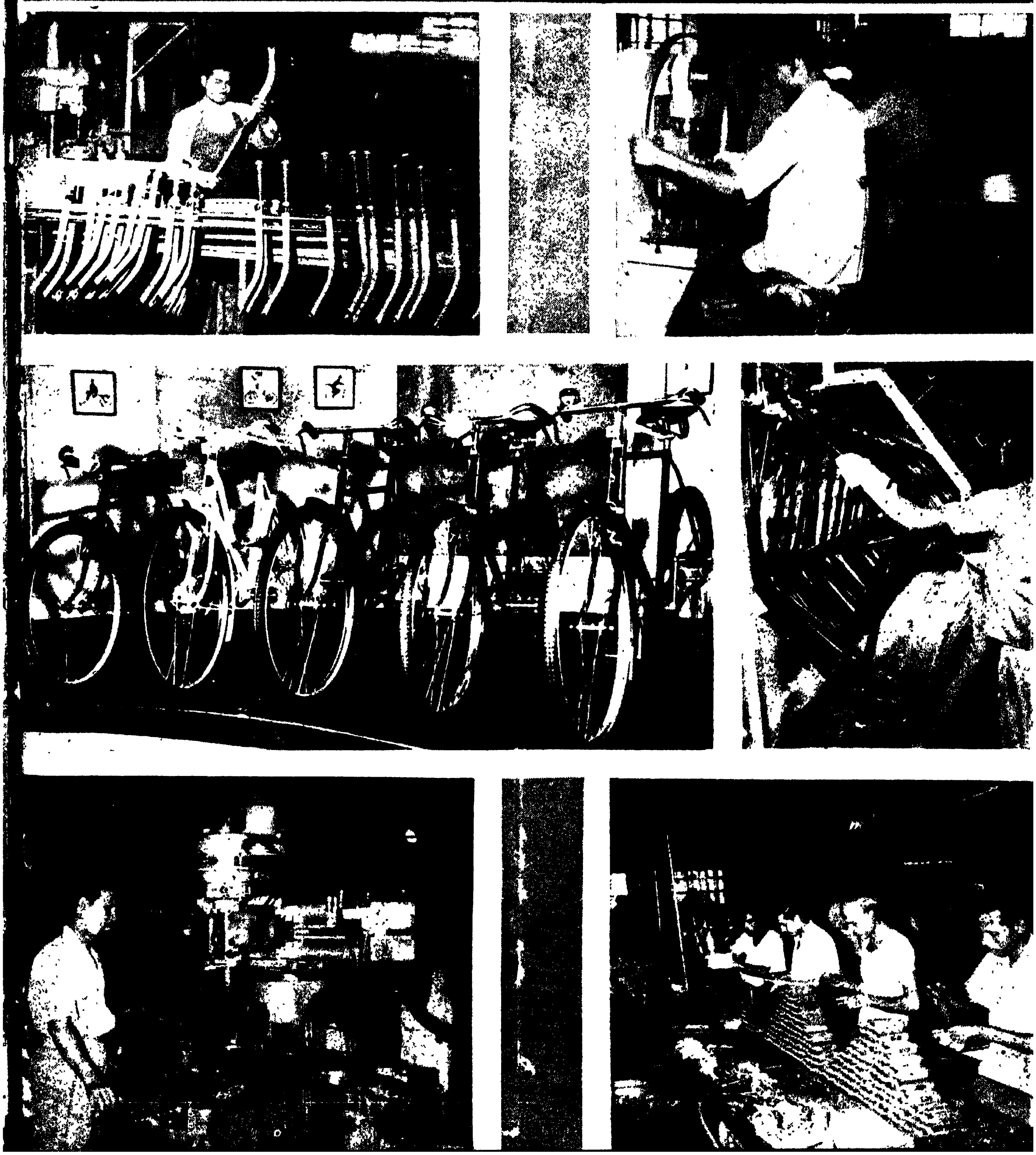
PUNJAB'S BICYCLE INDUSTRY

VOLUNTARY AGENCIES & THE DISABLED



Shri Vasant Sathe, Minister of Information and Broadcasting, going round the pictorial exhibition "Reaching the Millions" at Pragati Maidan in New Delhi.

India International Trade Fair 1981

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Surface to air missile on display at the Defence Pavilion

Bio-gas operated refrigerator and stove in the Energy Pavilion

YOJANA

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Editorial

The IMF Loan

THE declaration made by the Union Finance Minister, Shri R. Venkataraman in the Lok Sabha on November 23 while placing the statement on the IMF loan that the Government would not do anything derogatory to the country's self-respect or to national interests should be welcomed in all quarters. It is a matter of gratification to note that he has dispelled fears about devaluation. He said in his statement that "there was never any question of devaluation then and there is no question now".

According to the Sixth Five Year Plan estimates, the country will need to mobilise foreign capital inflows worth Rs. 2,800 crore by 1984-85, over and above the bilateral and multilateral aid commitments. By the end of the Sixth Plan, the trade deficits would be between Rs. 6,400 crore and Rs. 7,200 crore per year. In 1980-81 alone the deficit on this account was Rs. 5,500 crore, almost double the figure for the previous year. Higher payment for imports of crude and petroleum products was mainly responsible for this rise in trade deficit. The trade deficit can be breached only by drawings from the IMF. The accelerated programme for exploration and exploitation of oil and energy resources in the country may reduce our dependence on imported oil in the years to come. But it takes time for these programmes to yield results. Until then the IMF loan will provide cushion in meeting balance of payments problem. Thus recourse to the 5.8 billion dollar loan was found inevitable

Fear have been expressed about the conditionality. Shri Venkataraman has done well in dispelling fears about these conditions. These conditions spelled out by the IMF are based on sound economic policies. The conditions include an increase in administered prices of public sector products to lower the element of subsidy. The IMF has also suggested a number of measures to boost exports and thus increase exchange earnings. But most of these measures have already been incorporated in the Sixth Plan document itself and they are in operation as part of the current year's budget proposals. Thanks to these measures, the Finance Ministry has been able to contain the budgetary deficit within manageable limits.

The approval of the IMF loan, no doubt, has brought us a great relief, but it should not be considered as a great achievement. It is an onerous burden on the country. There should be no room for complacency and with the help of three tiers of economic discipline, namely fiscal, monetary and physical, we should not allow our resources to be frittered away. It is also essential that a close and careful look is given to import spectrum and only imports that can pass the rigorous test of indispensability should be allowed. Wasteful imports should be strictly curbed. The IMF loan, it is hoped will go a long way to rejuvenate our country's sagging economy. ☐ (30.11.1981).

Special Article

Effective Legislation Needed for the Disabled

Uma Joshi*

WHILE the International Year for Disabled Persons—1981—draws to a close, it is well to recall that the United Nations has adequately focussed attention on the enjoyment by disabled persons of rights and opportunities in order to ensure their full participation and integration into society. It is appropriate that the effort to find solutions to the problem of disabled persons should be an integral part of our national development strategies. The IYDP has the laudable objective of encouraging the rehabilitation of the estimated 450 million people on earth who suffer from some of physical or mental impairment. Another equally important objective has been the implementation of the 1971 Declarations by the U.N. on the Rights of Mentally Retarded Persons and the 1975 Declaration on the Rights of Disabled Persons. The IYDP must be seen not just as a year that can soon be forgotten but as the start of a new era.

The most prevalent forms amongst disabled persons are physical impairment, chronic illness, mental retardation and sensory disabilities. The great majority of the world's disabled persons live in developing countries. In them, mental patients make up between one-fourth and one-third of the disabled people. In the developed world, medical facilities are available but not so in poor countries. In the latter about 140 million people are disabled and 90 per cent of them secure no training or help whatsoever. Prestige projects in some of these countries are nothing but cosmetic embelishments. In India there are about 60 million handicapped people and their number increases by about 5 million every year. Majority of them cannot hope for medical, educational or financial aid. After Egypt, India has the largest blind population in the world. Almost 30 per cent of India's blind lose their eyesight before the age of 21 mostly because of nutritional deficiencies. In view of the many problems of high priority and of insufficient means and resources, the developing countries have been unable to allocate the necessary resources to solving the problems of disabled persons.

The U. N. Plan of Action has made an appeal to countries to prepare by the end of 1981 national plans for the follow-up of the activities of the Year with a view to reviewing and appraising the results of the Year by 1981. It has also appealed to review the existing legislation for eliminating the possible discriminatory practices regarding the education and employment of disabled persons. Also, the U.N. has asked all countries to introduce new legislation to ensure that disabled people have access to all public and social facilities. Let no one say that the resources are not available for the achievement of a better life for the world's disabled people. The truth is that too much is spent on the munitions of war and too little on munitions of peace. Estimates show that if only 1 per cent of what is now spent on war munitions were to be spent on prevention of disability and rehabilitation of disabled people, their lot in the Third World could quickly be improved. What is therefore required is the political will to do so, not the finances.

In India's Five Year Plans, the objective has been to develop an all-round programme to transform as many handicapped persons as possible into relatively active, self-dependent and productive members of the society. The Census of 1981 has, for the first time, enumerated three categories of the handicapped viz, totally blind, totally crippled and totally dumb. The most distressing aspect of the widespread disability in India is not only its large size but also the fact that a good proportion of the disabilities, especially among the younger age groups, could be prevented through the extension of a range of health care and social services, particularly in rural areas and urban slums. Illiteracy, prolonged social unconcern and prejudices have further compounded the problem. All this calls for enacting various laws for the benefit of the disabled.

Legislation in Japan

It would be instructive to know the laws which exist in other countries for the benefit of disabled persons. Here we state the existing laws in two countries viz., Japan and Sweden as models, though some of the provisions in them are also available in Indian laws. In Japan there is a Fundamental Law for countermeasures for mentally and physically handicapped persons (Law No. 34, May 21, 1970) along with other related laws numbering 18 in all. The Fundamental Law has the objective of promoting overall countermeasures for mentally and physically handicapped persons by clarifying the responsibilities of the State and local public bodies in regard to the fundamental policies for the prevention of the occurrence of mental and physical handicaps as well as for the welfare of mentally and physically handicapped persons such as medical care, training, protection, education, promotion of employment and providing of pension, etc.

Mentally and physically handicapped persons, as used in this law, mean those whose daily life or social life are considerably inconvenienced for a long period of time on account of a disabled limb or trunk, handicaps in the visual function, handicaps in auditory function, dysfunctions of equilibrium, voice, speech, and permament functional disorders of internal organs, such as the heart, respiratory organ as well as the mental deficiency like mental retardation. It has been provided that State and local public bodies shall accelerate investigation and research concerning the cause of the occurrence and prevention of mental and physical handicaps. They shall also disseminate necessary information, strengthen health measures for mother and child, make early discovery of sickness and injury which may cause mental and physical handicaps, promote early treatment and take other necessary measures, for the prevention of the occurrence of mental and physical handicaps. The State is also duty bound to provide necessary life-long protection to severely handicapped persons who find it extremely difficult to become self-supporting.

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* Psychologist, Institute of the Physically Handicapped, Ministry of Social Welfare.

Researches are continuously made by the State bodies concerning kind and area of occupation which are suitable for disabled persons of all types. It is felt that with guidance and counselling they can be enabled to enjoy daily and social life after they have received various dispositions in accordance with their welfare programmes. The related laws for disabled persons are quite sweeping in their content for an array of facilities, concessions and exemptions are provided in them. For example, the income-tax law gives them reduction|exemption from taxes, the education law guarantees special education for blind, deaf and the physically handicapped (including mentally retarded). There are laws for giving welfare services, preventive aids, welfare pension insurance, discount on tickets for railway journey and domestic airlines, etc. Other measures provided through laws are vocational training, employment promotion, housing loans, installation of special traffic signals for the blind, and exemption from various taxes like business tax, auto tax, corporate tax, resident tax etc.

In Sweden

Now about legislation for disabled persons in Sweden. The major goal for Swedish measures for the disabled is that the disabled should be part of the community and live like others. They should have the same opportunities to earn a living, have a good home, move about, and have meaningful jobs and leisure activities. The Swedish view of disability and handicap is expressed in several government propositions and Acts of Parliament, where it is laid down that the handicapped are not a special group or separable group of people. An important view which has motivated the laws for disabled persons is that a handicap is not characteristic of a person with a disability caused by injury or illness, but a relationship between the person and the environment. The World Health Organisation has made a distinction between an impairment which is an individual characteristic, functional limitation or disability as a result of an injury, and handicap which are the social consequences of an injury and functional impediments. This approach which really shifts the handicap from the individual to their environment, is important, because it places a responsibility on all organisers, both public and private, to see that the activities they run are accessible to all—also to disabled people thus preventing a disability from becoming a handicap.

In contrast to Japan and many other countries, Sweden has no general law with the aim of securing the rights of disabled persons. There is one exception to this rule. This is the Act on Provisions for Mentally Retarded Persons of 1968, which makes the county councils responsible for ensuring that the mentally retarded are granted their full civil rights. The law is intended to meet the requirements of the mentally retarded not met by the social resources at the disposal of all citizens. A basic principle of the law is that all mentally retarded persons, who need special care by society, should receive this to be able to take part as far as possible in a normal social life. The country councils are responsible for mentally retarded persons resident within their area receiving education, care and other attention in accordance with the Act. The only exception is the special education of visually and auditorially impaired, mentally retarded persons, which is carried on in special state schools.

In recent years there has been a trend in Sweden towards framework legislation with less and less detailed government control of the local authorities' and country councils' activities. By means of special government subsidies to activities considered especially important, such as, for example, the home help service and transport services, the government has sought to create guarantees for the realisation of such activities. The municipalities have the ultimate responsibility for providing for the needs of the disabled. Technical aids for the disabled are in principle free of charge to the individual. They are supplied without a means test and there is no upper limit for the cost of the aid. Even repair and maintenance of the aid occur without cost to the disabled person. The technical aid service includes testing, prescription, adjustment, information and training. The provision of interpreting services for the deaf, the dump, and and those with speech impediments is also part of the service.

Building laws prescribe that dwellings with some exceptions should be designed so that they can also be used by persons with reduced mobility and orientational ability. This applies to new buildings and to extensive reconstruction. There is a special government housing allowance to enable the dwelling to be designed to meet the disabled persons individual requirements. This is granted for all types of disabilities. Public transport, including platforms, stations, etc. is usually designed in such a way that particularly persons with physical disabilities, such as motor impediments and defective sight and hearing, have no difficulty in using them.

Child Care

The Child Care Act came into force on January 1, 1977. According to it, the physically disabled children have to be given priority to a pre-school placement as a matter of right. Pre-school activities are organised so that a group of children with defective hearing form part of larger group, or individual children with defective hearing attend their ordinary pre-school. The majority of disabled pupils can attend an ordinary school at upper secondary level. There are special schools also. Employment for all—this is the slogan and aim of Swedish employment policy. The Work Environment Act prescribes that the employer is obliged to adapt working conditions to individuals' physical and mental requirement. This means demands for adaption to individuals with various disabilities as well. In 1974 two laws came into force with the aim of strengthening the situation of employees on the labour market, and in particular that of the elderly and the disabled. The disabled persons are given special protection by rules for the order in which employees are to be dismissed or laid off. There has been a negative trend for the disabled on the labour market during the last few years. The efforts of the government are aimed at breaking this trend and increasing disabled persons' opportunities for obtaining employment.

Social insurance legislation provides for disability pension and allowances. Child care allowances are paid to parents taking care of children under 16 years of age, who due to illness, mental retardation or other disability require special care and supervision for a considerable period of time. This allowance is not payable to parents whose children are taken care of in an institution, which belongs to or receives subsidies from the government, country council or local authority.

Social Services Act

As a result of the social services reform which will come into force on January 1, 1982 the Social Assistance Act, the Temperance Act, the Child Welfare Act and the Child Care Act will be superseded by a joint legislation called Social Services Act. The new Act imposes on the municipality an ultimate responsibility for the social situation of the individual in a more explicit manner than the earlier legislation. The Act stipulates that the individual is entitled to assistance from the social welfare committee (government's body) for his support and his way of life in general if his needs cannot otherwise be met. The individual must by the assistance be guaranteed a reasonable standard of living. The committee has the same respossibility for disabled as for able-bodied citizens. The municipality's obligations are determined by the indivdual's difficulties in his way of life. The social welfare home help service is vital for many disabled and is being developed.

Within the socio-political grant system the social security insurance in Sweden is the most comprehensive in terms of both legislation and cost. The system is designed with special reference to disabled persons. Early retirement pension, disability compensation, and care allowance are expressly intended for them. To sum up, the Swedish movement of disabled people differs from organisations for disabled in many other countries in that it consists to a high degree of organisations of and not for the disabled. They are dominated to a large extent by the disabled themselves and in the last few years have come to function as social policy pressure groups in relation to society. Society supports the activities of the organisations for the disabled, both financially and in other ways. The government support is intended for national associations. The disabled are given an opportunity to voice their opinion on draft bills, they take part in reference groups, working parties, committees, etc., appointed to carry out special investigations at central government, country and municipal level. They are also in many cases members of permanent bodies. Special coordinating bodies have been set up at different levels for contact between the authorities and the organisations of the disabled.

To conclude, the experience of all countries shows that it is largely the environment which determines the effects of an impairment on a person's daily life. Hence, the society has an obligation to make, through legislation, their general physical environment, their Social and health services, their educational and work opportunities as well as their cultural and social life, including sports, totally accessible to the disabled persons. A society that shuts out a number of its members is an impoverished society. Disabled persons should not be considered as a special group with needs different from the rest of the community but as ordinary citizens with special difficulties in getting their ordinary human needs fulfilled. Amongst the most urgent legislations that need to be put into operation in India are in matters concerning reservation of jobs for handicapped, preventive measures, disability insurance and compensation, various grants and allowances, right to education, right to treatment free of charge to any extent, right to free technical aids, right to concessions in transport and various other services, and finally the right to live in their familiar environment. ☐

All India 'Van Vardhak' Award

WITH a view to encouraging individual efforts in developing forestry in the country, the Union Agriculture Ministry has instituted "Van Vardhak" Award, on an all India basis from this year. The award carries cash prizes and certificates to three best competitors as declared by a panel of judges headed by the Inspector General of Forests or Additional Inspector General of Forests

The competitions for the Award would be conducted, in respect of three species raised viz., (i) Fuelwood, (ii) Fodder and (iii) Fruits and small Timber.

The person securing the first position will get a cash award of Rs. 5000 and certificate conferring the title "Van Vardhak" for the year Those securing second and third positions would be given Rs. 3000 and and Rs. 2000 respectively.

Role of Statistics in Economic Development

S. B. Chavan*

OUR statistical system has developed over the years within the administrative structure and division of responsibility between the Central and the State Governments. In such a decentralised statistical system, adequate coordination of the wide ranging statistical activities is very important to avoid duplication of efforts.

I am glad to note that the recommendations made at the First Conference of State Ministers of Statistics held in April 1981 are receiving greater attention of the concerned authorities for improving the statistical system. Effective implementation of these recommendations, particularly the augmentation of the analytical capabilities of the statistical organisations at the Centre and in the States and strengthening the statistical machinery at district and block levels should be given priority. If concrete and viable programmes in this direction are put forth by the States, I am sure, these will get due consideration in the Planning Commission.

Although we have made considerable progress in diverse areas of official statistics, there are still grey areas where data are to be built up not merely at the national level but also at the regional and sub-regional levels for the purpose of detailed local level planning. Further, with the planning process entering new areas of economic activities, the requirements of statistics both as benchmark data as well as for concurrent evaluation are increasing. I would like to mention here some of these areas.

Statistical Abstracts

The State Directorates of Economics and Statistics bring out regularly annual statistical abstracts containing comprehensive statistics on various socio-economic aspects of the States and the statistical series presented in these abstracts are serving as a good reference material to all users. The coverage and content of the data presented in these abstracts, however, vary from State to State. With a view to building up an all-India picture and making inter-State comparisons on a regular basis, it will be desirable to present certain minimum items of information uniformly in all the state statistical abstracts.

Data on Social Services

Social services such as provision of housing, improving educational facilities and other minimum and basic needs of the people are given priority in our Plans. The statistical data base in these sectors is relatively weak and greater attention will have to be given to improve the system. Some of the problems involved in collection of statistics in these areas are both conceptual and organisational.

District level planning is becoming more functional and for effective formulation and implementation of this process, certain minimum essential statistics will have to be maintained at district level and, at the same time, district economic review prepared so as to provide necessary data support.

In the context of development of energy resources in the country, there is an urgent need for authentic and comprehensive information on the demand and consumption of different forms of energy. Data on items like fire-wood, agricultural waste and animal dung, will have to be built up on sound statistical principles, as these non-commercial forms of energy account for a substantial proportion of the present levels of consumption. I hope the statistical organisations at the Centre and in the States will give more attention to the collection and compilation of these statistics.

Environmental Development

As you are aware, in our Sixth Plan, we have given special attention to environmental developmental efforts. Consequently, the data required for formulation of an appropriate environmental policy need careful consideration. Some data on various facets of environment are being collected by different agencies. There is need for coordination of the efforts of different departments and institutions in collaboration with the newly created Department of Environment.

A study of differences in State Domestic Product and Per Capita Income is useful to measure the regional income inequalities and for allocation of Central assistance amongst the States. It is, therefore, important that adequate attention is given to proper measurement of State incomes on the basis of a commonly accepted methodology.

Timely availability of data needs no emphasis. Manual and mechanical tabulation methods for processing the results of large scale censuses and surveys are not wholly adequate and electronic computers will have to play larger role in future. We have to rationalise and streamline the existing methods of data processing at different levels and plan work in such a way that this particular operation may not be a bottleneck in the final availability of the results.

The development of statistical system in different parts of the country is not uniform due to different local needs, administrative structure and importance of particular sectors of the economy in the region. In this context, I have in mind the statistical development in the North Eastern Region. I am glad to note that a Working Group has recently gone into the requirements of statistics of the North Eastern Region and also of the Ghat and Tribal Areas. I hope that the North Eastern States would carefully consider these recommendations and fix priorities for development of statistics in different fields.

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*Minister for Planning and Deputy Chairman, Planning Commission. Excerpts from his inaugural address delivered on November 12, 1981 at the Fifth Conference of Central and State Statistical Organisations.

A Case Study in Coimbatore District

Domestic Energy Consumption in Rural Households

K. Rajendran*, R. Shanmugam and K. R. Swaminathan*****

INDIAN economy has been experiencing the impact of energy crisis in its worst form in recent years. The poor performance of various industries and the high inflation prevalent in India may be attributed to a great extent to the power failures and the sky rocketing of prices of the petroleum and its products.

Energy sources may be broadly classified under two categories: Commercial sources and non-commercial sources. In 1977, of the 487.80 million tonnes of coal replacement energy consumed, about 55 percent was obtained from commercial energy and the rest 45 per cent from non-commercial energy sources. This indicated that non-commercial energy sources like firewood and vegetable wastes are as important as the commercial energy sources like coal, oil and electricity.

According to the 1970-71 estimates, more than 70 per cent of the commercial energy was used by the industrial and transport sectors, 18 per cent by the domestic sector and about 12 per cent by the agricultural government and commercial sectors. Household sector consumed a significant quantity of the total energy consumption in India. Total energy consumption in the domestic sector during 1970-71 was estimated at 214.91 million metric tonne coal replacement units of which commercial energy constituted 16.52 per cent and the non-commercial energy constituted 83.48 per cent. Firewood was found to be the major supplier of non-commercial energy and oil among the commercial sources in the domestic sector. Energy supplied from cowdung cake in the domestic sector was estimated at 12.52 per cent of the total domestic energy consumption.

The fact that firewood and cowdung together provided about two thirds of the domestic energy makes one presume that this trend would become hazardous from the ecological and economic points of view. By consuming more firewood forests are destroyed, and by using cowdung in its raw form for energy we deprive ourselves of a valuable crop nutrient.

All these energy conditions necessitate studies on energy consumption in various sectors so as to study the energy problems and to identify the methods to generate and|or conserve as much energy as possible. Therefore a case study was taken up in 1980 in a village of Coimbatore District with the object of estimating the household energy consumption along with different components of energy and the cost of domestic energy use.

Sample households were selected by random sampling method and the needed information on different types of fuels used, their quantity, value and purpose were collected by survey method with the help of interview schedules. Apart from these data the number of animals maintained in the farm, sizes of the farms and the families were also collected.

Conventional percentage and average analysis were carried out to find out total quantity of different types of fuels used according to their purpose. Energy consumption per household and also per capita were worked out in terms of actual quantity and value and also in terms of energy units (kilo calories). To convert the different energy sources to uniformity following conversion factors were used.

one KWH electricity	860 kilo calories
one litre of kerosene	- 9599 kilo calories
one kilogram of cowdung	— 2100 kilo calories
one kilogram of firewood	— 4708 kilo calories

Findings

The results of the investigation carried out revealed that the size of family of cultivator household was 7.21 and that of the non-cultivator households 4.93. The cultivating households were, therefore, supporting larger number of people than the non-cultivating ones. Different kinds and quantities of energy used for domestic activities per annum in the rural households are given in Table 1.

Table 1 indicates that the average per household firewood consumption was more with cultivator households than non-cultivator households. But, when compared on per capita basis there was not much difference between the consumption by the two groups. Cowdung and electricity were more in use in cultivator households than non-cultivator households. Kerosene consumption was more for non-cultivator households.

To make better comparison different types of energy sources were converted into energy units and the details are furnished in Table 2.

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Table 1. Different kinds of quantities of energy consumption for domestic activities in the sample households—Average per household and per capita.

Particulars	Cultivator households		Non-Cultivator households	
	per household	per capita	per household	per capita
(1)	(2)	(3)	(4)	(5)
Firewood (in kg.) Owned	1814.30	251.50	1024.30	207.80
Purchased	772.90	107.10	748.60	151.90
Total	2587.20	358.60	1772.90	359.70
Cowdung (in kg.)	178.57	24.75	35.71	7.25
Kerosene (in litres)	27.64	3.83	44.71	9.07
Electricity (in KWH)	271.68	37.68	49.68	10.08

Table 2. Sourcewise annual energy consumption in the sample households.

(Energy in lakh kilo-calories)

Particulars	Cultivator Households		Non-cultivator household	
	per household	per capita	per household	per capita
Firewood	121.81 (93.26)	16.89 (93.26)	83.47 (93.91)	16.93 (93.91)
Cowdung	3.80 (2.91)	0.53 (2.91)	0.76 (0.86)	0.15 (0.86)
Kerosene	2.66 (2.04)	0.37 (2.04)	4.22 (4.75)	0.86 (4.75)
Electricity	2.34 (1.79)	0.32 (1.79)	0.43 (0.48)	0.09 (0.48)
	130.61 (100)	18.11 (100)	88.88 (100)	18.03 (100)

(Figures in parentheses indicate percentages to total)

It is clear from the above table that per capita domestic energy consumption was about 18.11 lakh kilo-calories and 18.03 kilo-calories in the cultivator and non-cultivator households respectively. From among the four sources of energy firewood, cowdung, Kerosene and electricity, firewood provided more than 90 per cent of the energy in the rural households. Firewood was followed by cowdung cake in cultivator households and provide about 3 per cent of the total energy. In non-cultivator households firewood was followed by kerosene. Domestic electric energy consumption was more in the cultivator households than non-cultivator households Total energy consumption per household was higher by about 50 per cent in the cultivator households when compared to non-cultivator households. But on per capita basis there was no different between them in the total energy consumption.

Out of the total energy consumption of about 131 kilo-calories per cultivator household about 98 per cent was used for cooking and only about 2 per cent for lighting. In the non-cultivator households about 4 per cent was used for lighting and the rest 96 per cent for cooking.

Sourcewise energy cost studies showed that on an average a cultivator household spent about Rs. 829 per household and Rs. 115 per capita for domestic energy consumption per annum whereas a non-cultivator household spent about Rs. 570 per household and about Rs. 116 per capita per annum for domestic energy. Of the total domestic energy cost more than 75 per cent was spent on firewood in both categories of the rural households, cost on firewood was followed by cost on electricity in cultivator households and by cost on kerosene in non-cultivator households.

Table 3. Sourcewise average annual energy cost in rural households

Sl. No.	Particulars	Cultivator households		Non-cultivator households	
		Per household	Per capita	Per household	Per capita
1.	Firewood	633.38 (76.38)	87.79 (76.38)	466.61 (81.61)	94.73 (81.61)
2	Cowdung cake	53.57 (6.46)	7.43 (6.46)	12.50 (2.19)	2.18 (2.19)
3.	Kerosene	47.26 (5.70)	6.55 (5.70)	75.26 (13.16)	15.51 (13.16)
4.	Electricity	95.09 (11.46)	13.19 (11.46)	17.39 (3.04)	3.53 (3.04)
	Total	829.30 (100)	114.96 (100)	571.76 (100)	115.95 (100)

(Figures in parentheses indicate percentages to total)

(*Contd. on Page 17*)

Bicycle Industry in Punjab: Problems and Prospects

Premjit S. Grewal*

PUNJAB has made considerable progress in building up an industrial economy through a process of planned development over the last two decades. It has made considerable progress in the manufacture of such consumer products as bicycles, sewing machines, electric fans, washing machines, desert coolers and mopeds. In the production of cycles, Punjab tops other States as nearly 60 per cent of the bicycles are produced in the State. The production of bicycles in the country increased from 24.08 lakhs in 1972 to 40.00 lakhs in 1979 while in Punjab the production rose from 5.39 lakhs in 1972 to 24.75 lakhs in 1979 The number of those employed in this industry in Punjab rose from 14,620 in 1970-71 to 36,936 in 1977-78.

Origin

The bicycle industry in the State is 43 years old but its production increased remarkably only during the last ten years Late S. Karam Singh Bhogal was the pioneer of bicycle industry in Ludhiana. He started a small workshop for manufacturing Centre Axil and Cone in 1938. World War II proved a boon to the industry because bicycle imports were absolutely stopped. This provided a stimulus to the production of cycle parts such as bells, carriers, mud-guards etc. Following the grant of protection in 1949 in the form of import duty of 75 per cent *ad-valorem* on bicycles and parts new manufacturing units were set up at Sonepat (now in Haryana), Rajpura and Ludhiana. The stoppage of imports of bicycles and parts in 1957 gave a fillip to the establishment of subsidiary cycle industry. The main bicycles and components producing centres at Ludhiana, Amritsar, Jullundur, Rajpura and Malerkotla have made spectacular progress since then.

Problems of Industry

Multi-stage sampling was adopted to probe the problems faced by the industry. In the first stage, Ludhiana was selected because the bicycle industry is mainly concentrated here both for production and employment. Here 40 units produce complete bicycles and nearly 1800 units produce components in medium and small sectors. In the second stage, manufacturing units were classified on the basis of investment into three categories viz. large, medium and small. In the final stage, the requisite number of respondents were selected for interview from each category for random survey. The study covered the year 1980. Various problems faced by the bicycle industry are discussed below :

(i) Shortage of Power : The selected units were not getting sufficient power to fully utilise the installed capacity. The power to the industry was supplied during night from 6 P.M. to 2 A.M., which had created twin problems of poor quality of products and labour inefficiency. It was further pointed out by respondents that power cut in Punjab had become almost a regular feature since 1977. It was reported that the industry faced acute power shortage from May to June and November to February in these years. The respondents felt that the shortage of power supply had been due to Government's policy of supplying power to the farm sector. During these months, power cut was to the extent of 40 to 60 per cent. In addition to this, industry also faced the problems of low voltage and local power break-down on an average twice a week lasting 1 to 2 hours. The small units were hard-hit by the restrictions on power supply. It had affected the production of these units by 30 to 40 per cent.

Despite the power constraint, the bicycle industry has shown remarkable progress because a large chunk of production comes from big and medium units which have their own power generating sets.

(ii) Poor Availability of Steel at Controlled Prices: The bicycle manufacturers were not getting steel at controlled prices according to their needs. Only 3 respondents pointed out the availability of steel to the extent of 50 to 60 per cent and the remaining only 5 to 10 per cent at controlled prices of their requirements. The remaining quantity of steel was purchased by manufacturing units at a premium price.

(iii) Fuel Oils : The bicycle industry normally uses four types of fuel-oils namely furnace oil, kerosene oil, high speed diesel oil and light diesel oil. The first two are used for heating purposes while the other two for power generation. Out of 61 respondents, only 5 stated the availability of fuel-oils to the extent of 45 to 55 per cent of their consumpition at controlled prices. The remaining respondents got only 25 to 35 per cent of their needs at controlled prices and the rest at premium prices. The increasing cost of fuels due to international situation and fuel hikes by our Government had badly affected the production cost of bicycles.

(iv) Inadequate Supply of Coal : The bicycle industry needs coal for heating purposes which is to be supplied by Government at Rs. 225 per ton. The respondents reported the easy availability of coal at premium price but poor supply at controlled price. Out of 61 respondents, 2 stated, coal supplies to the

(Cont. on page 14)

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Economic Inequalities Among the States

Dr. Badri Bishal Tripathi*

INDIA ranks second in terms of population and seventh in terms of area in the world. The country comprises regions that are extremely heterogenous in terms of resources, climate, soil and languages. The same physical heterogeneity lies among the different States. On account of extreme heterogenous base, there has been economic inequality among the States.

To explain economic inequality of the States, we do not have sufficient data regarding total output, income and infrastructure of the States at the beginning of the planning period in India. However, on the basis of some scattered data, only a simple trend can be cited to show condition of inequality among States. In 1951 about 17.8 per cent of those engaged in agriculture fell under the category of agricultural labour. The population of agricultural labour was well above the all India average in Bihar, Madhya Pradesh and West Bengal. In Bihar about 26 per cent of agricultural population came under this category. On the basis of this criterion Bihar, Madhya Pradesh and West Bengal were among the poorest States in the country, whereas Punjab, Uttar Pradesh and Andhra Pradesh were among the rich ones. More than 45 per cent of the net sown area was irrigated in Punjab while less than 8 per cent of the net area sown was irrigated in Madhya Pradesh. This shows that there was widespread inequality among the States at the beginning of the planning in India.

Inequalities among States

An important objective of planned development is to bring about a progressive reduction in inequalities among the States in the pace of development and diffusion of technological benefits. But, in spite of multi-dimensional growth in the Indian economy during the last thirty years of planning efforts to reduce glaring inequalities among States have proved ineffective. Just as the population can be divided between the rich and the poor the country can also be divided between the rich and the poor States. It is generally recognised that the present degree of inequality in incomes and economic status is unacceptable and should be reduced. But in spite of efforts during the planning era these inequalities have increased. The concentration of poverty and malnutrition is increasing in certain States. The country is getting polarised into a few developed States and many stagnant and deteriorating ones. Bihar, Orissa, Uttar Pradesh, Assam, Andhra Pradesh, Tamil Nadu and West Bengal are the most important among the poor States. For example, during the period from 1960-61 to 1975-76 the domestic product of Bihar grew at the rate of 1.7 per cent per annum and the gross domestic product of Uttar Pradesh grew at the rate of 2.5 per cent per annum. Though, the domestic product of Madhya Pradesh and Andhra Pradesh grew at the rate of 3.5 per cent per annum during the same period yet, if we take the period of 1970-71 to 1977-78, their growth rates were lower at 2.05 and 2.80 per cent only. Tamil Nadu showed a dismal performance. During 1970-71 to 1977-78 the State is estimated to have registered an annual rate of 0.66 per cent only. If per capita income is taken as an indicator of economic standard, Bihar, Orissa, Madhya Pradesh, Uttar Pradesh and West Bengal are among the poor States and Punjab, Maharashtra, Haryana and Gujarat are among the rich States. While a large proportion of the population in India lives below the poverty line, a larger percentage of it lives in the poorer States. The imbalances in the pace of agricultural and industrial advance are reflected in the large difference of population living below the national poverty line. The data for 1977-78 given in table I (next page) show a range of the percentage of population living below the poverty line from 15 per cent in Punjab to 66 per cent in Orissa. The different forms of economic inequalities are shown in the table.

Causes of Inequalities

The above explanation of development experience of the Indian economy clearly reveals inequalities among the States. It is very strange that the prosperity and the poverty are increasing side by side. This gives rise to a very genuine question of why this has happened ? The following are the main causes of economic inequality among the States:—

(i) It is well-known that infrastructure is the foundation of economic development. It is only infrastructure that keeps the whole economic machinery in motion. It enables an optimal utilization of natural resources. The development of infrastructure accelerates the rate of growth of the economy. Though, during the planning period, infrastructural facilities have strengthened the economic base of the country, yet there is acute disparity in the distribution of infrastructure—power, irrigation, transport, coal etc.—among the States. The table 2 shows the index of composite infrastructural development in different States for the year 1975-76. To compare the level of composite infrastructure among the States the index number 100 is earmarked for the country for the year 1975-76 The table 2 shows that Punjab occupies the highest

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Table 1 Regional Inequalities in India

States	Percentage of population below poverty line (1977-78)	Per capita income in 1977-78 at current prices	Percentage of net irrigated area to net area sown (1975-76)	Per capita power consumption in 1978-79 KWH (Per annum)	Villages electrified as percentage of total no. of villages.
(1)	(2)	(3)	(4)	(5)	(6)
Andhra Pradesh .	42 18	1002	30.8	95	62.5
Assam . . .	51.10	866	22.0	34	20.4
Bihar . .	57.49	735	32.6	79	30.5
Gujarat . .	39.04	1341	16.6	240	62.0
Haryana . .	24.84	1472	48.4	250	100.0
Himachal Pradesh	27.23	1154	16.1	53	54.6
Jammu & Kashmir	34.06	986	43.5	90	70.0
Karnataka . .	48.34	1141	13.2	153	61.0
Kerala . .	46.95	968	10.4	104	100·0
Madhya Pradesh	57.73	896	9.6	99	32.5
Maharashtra .	47 71	1628	9.9	223	72.7
Manipur . .	29 31	799	46.4	6	16.5
Orissa .	66.40	857	16.5	116	37.1
Punjab .	15.13	1962	75.1	328	100.0
Rajasthan .	33.76	925	16.9	104	41.8
Tamil Nadu . .	52.12	1031	42.8	181	99.0
Tripura	59.73	—	12.5	15	35.2
Uttar Pradesh .	50.09	916	46.1	96	34.9
West Bengal .	52 54	1303	24.1	113	30.7
India . . .	48.13	1189	24.3	134	44.5

Table 2 : Index showing level of composite infrastructure (1975-76=100).

States	Index 1975-76
Punjab	208
Kerala	160
Tamil Nadu	155
Haryana	152
West Bengal	143
Gujarat	119
Maharashtra	107
Bihar	96
Uttar Pradesh	95
Assam	95
Andhra Pradesh	96
Orissa	99

place followed by Kerala, Tamil Nadu and Haryana, Bihar, Uttar Pradesh, Assam, Andhra Pradesh and Orissa have a very low index of infrastructural development. Such glaring inequalities regarding infrastructural facilities are widening the gap between the rich and the poor States. Owing to the strange and stable position in infrastructure the rich States are reaping the fruits of development programme at the cost of the backward States.

(ii) Agricultural development had not been even throughout the country. This resulted in an increase in poverty and inequality among the States. In 1976 the Planning Commission estimated that 25 per cent of roughly 400 districts in the country had negative growth during the preceding ten years, another 14 per cent districts had growth rate between 0 to 1 per cent, about 25 per cent districts had an average rate of growth of more than 3 per cent and a few districts showed 5 to 7 per cent annual increase in agricultural production. Table 3 on next page shows the state of unequal rate of increase in crop production of different States during 1962—65 to 1971—74. The table reveals that while Punjab showed 8.35 per cent per annum growth rate Nagaland and Maharashtra experienced a negative growth rate or more than two per cent per annum. In connection with this unequal growth rate it may be mentioned that physical requirements vary from crop to crop and due to differences in soil, climate, topography, rainfall and irrigation facilities cropping pattern and average production of different crops per unit of land will not be uniform in all the States of the country. The lack of diffusion of the new seed-fertiliser irrigation technology has accentuated statewise imbalances and an 1977-78 the value of per capita agricultural output of the rural populatoin was Rs. 888 in Rajasthan, while it was as high as Rs. 3361 in Punjab.

Table 3 : State-wise growtha tes of crop production 1962—65 to 1971—74

(Per cent per annum)

State	Growth rate
Punjab	8.35
Haryana	6.66
Kerala	4.96
Rajasthan	3.80
Himachal Pradesh	3.68
Uttar Pradesh	3.28
West Bengal	3.14
Tamil Nadu	3.12
Assam	2.63
Karnataka	1.88
Gujarat	1.75
Bihar	1.67
Madhya Pradesh	1.29
Andhra Pradesh	.17
Jammu & Kashmir	0.69
Orissa	0.19
Nagaland	2.33
Maharashtra	2.42

(iii) During the last thirty years the industrial sector of the country has changed considerably. This change has been noticed since 1956 when the country's new industrial policy was announced. Industrial production has gone up by about five times during this period. Apart from the quantitative increase in outputs the industrial structure has been widely diversified covering broadly the entire range of consumer, intermediate and capital goods. But the industrial development has not been even throughout the country. There are nine industrially developed major States in the country, each of which accounted for at least 4 per cent of the total value added by manufacture in 1975-76. Maharashtra continues to remain at the top. These nine States namely, Maharashtra, West Bengal, Gujarat, Tamil Nadu, Bihar, Andhra Pradesh, Madhya Pradesh, Uttar Pradesh and Karnataka together accounted for 77 per cent of reporting factories, 97.3 per cent of reporting capital, 92.8 per cent of industrial employment, 95.1 per cent of output and 94.8 per cent of value added by manufacture. This clearly points to the industrial backwardness of the rest of the States of the country. It is clearly mentioned in the Sixth Five Year Plan that the geographical spread of industry and modern agriculture is undoubtedly better now than at the beginning of the planning era. But it is clear that we have to go a long way in this task of reducing regional imbalances.

Approaches to Overcome Inequalities

Economic development is not an even process and if economic activities are left to market forces, they tend to concentrate in certain States. To achieve high growth rate and distributive justice, the country adopted the planning process which implies States intervention in economic matters. But the development experience shows that in spite of States intervention in economic matters there is acute inequality among the states. So the backward States call for a speccial approach and extra assistance, the need for more stress on development policies to promote their economic status. If there are wide differences between the Standards of living or levels of development of different States they would increase the tendencies of provincial jealousies. Reduction of such differences among the States is, therefore, a political and economic necessity. It is necessary to take following steps to reduce these inequalities :—

(a) There should be additional grants for the development of under-developed States. The States that lag behind others in economic development and economic activities, are unable to raise sufficient funds for their needs. The Central Government comes to their assistance to meet such deficits. So an increase in the rate of development in these beckward States requires higher amount of public expenditure and federal grants by the Central Government. Bihar, Orissa, Uttar Pradesh, Assam and Jammu & Kashmir would have to be given a larger per capita Plan expenditure than the average expenditure of other States.

(b) Since infrastructure is the foundation of development, the rectification of unequal distribution of infrastructure is necessary for removing the poverty and backwardness of the backward States. Infrastructural development will affect the income generation and the capacity of the generation of gainful employment to the maximum extent.

(c) Land is the major means of production of which the major population of India depends for their livelihood in the country; and in backward States larger percentage of population depend for their livelihood on agriculture. Here the primary objective is to increase agricultural output. The new agricultural strategy is closely related to timely supply of agricultural inputs. But the supply of agricultural inputs is comparatively poor in poor States. The timely supply of agricultural inputs in backward States is therefore, necessary. Again, high yielding varieties of seed are highly location specific. So it is necessary to concentrate on location specific research to develop the high yielding varieties of seeds for the specific regions or States.

(d) The experience with larger industrial projects located in backward areas suggests that organised industry is not necessarily the sort of growth catalyst that backward areas need. Much greater emphasis is to be laid on the development of small and village industries and subsidiary occupations. There is need to expand village and small scale industries producing mass consumption goods through locally available resources with labour intensive technology. Village and small scale industries because of their favourable capital-output ratio and high employment intensity, are very helpful in the creation of additional employment and for improvement in the levels of production in economically backward States.

Although there has been an impressive development of rural industries during the last three decades of development our progress has not been even and to the desired level. The dispersal of small scale units away from developed areas and large cities has not taken place to an appreciable extent. Available data indicate that industrially developed States along with Delhi accounted for nearly 67 per cent of small scale registered units which had come up till 1976 and about 75 per cent of the employment has been generated by them. There has not been much improvement in the field of village and small scale industries in economically backward States. For accelerated development of the village and small scale industries in backward States, credit and technical facilities are to be extended intensively and extensively. Compilation of an integrated resource inventory and identification of the industrial resources which are unutilised or under-utilised at present are also of prime importance. ☐

Bicycle Industry in Punjab

(Contd. from page 10)

extent of 30 to 40 per cent and the rest between 10 to 20 per cent of their needs at controlled prices and the remaining quantity at premium price.

(v) Shortage of Finance : All the small units surveyed were handicapped by the non-availability of finance in regard to both fixed and working capital. The respondents reported that commercial banks preferred large and medium units to small units in advancing loans. They further stated that they had to borrow from non-banking institutions at exorbitant rates of interest varying between 25 to 35 per cent. Due to shortage of finance small manufacturers could not replace worn-out machines and failed to produce quality components.

(vi) Inventory : Bicycle manufacturers have to keep large inventory to avoid the closure of factories due to uncertain and irregular supplies of raw materials. In Japan, bicycle manufacturers maintain inventory only for three days. The respondents stated they had to carry inventory for several weeks particularly of fuel-oils due to Iran-Iraq war and tense Assam situation. The maintaining of inventory therefore, blocked the working capital and resulted in unnecessary addition to the cost.

(vii) Low Demand in Home Market : The manufacturers were very much concerned about the low demand for bicycles in the country. The respondents stated that had there been no exports of bicycles and components, the industry would have faced recession. The increasing demand of bicycles in the world market had given extra stimulus to the manufacturers to enhance production. The respondents feared further low absorption of bicycles in the country due to the following reasons.

(a) Nearly 48 per cent of the population is below poverty-line.
(b) Most of the families in low and middle income groups possess a bicycle.
(c) Bicycle in our country is a life-long companion whereas in USA and Japan, people keep bicycles not more than two seasons on an average.
(d) Bicycle is not used here by all sections of society as in advanced countries.

(viii) Export Problems : The industry also faces certain peculiar problems concerning the export of bicycles and components. For instance, the manufacturers have to incur additional expenditure on transporting bicycles and parts by road to major parts as there is unnecessary delays in the despatch of goods by rail. Other problems experienced in this respect are:

(a) Cumbersome procedure of filling forms and declarations ;
(b) Indiscriminate increase in freight by shipping companies during the last three years ;
(c) Growing congestion at major ports giving rise to port charges ; and
(d) Delay in the disbursement of export incentives such as cash compensatory support, replenishment licence, duty drawback and excise refund.

It is interesting to note that the acute power shortages, non-availability of raw materials at reasonable prices and financial stringencies faced by the bicycle industry have not hampered the production and employment in this industry. Rather the production has been on the increase since 1972-73. The labour problem faced by the bicycle industry in other parts of the country has been conspicuous by its absence in Punjab. No lay-off or labour strike in the industry has been reported.

The bicycle industry in Punjab has bright prospects provided sincere efforts are made by the government to help it overcome its problems. Problems of shortage and frequent breakdown of power and short and irregular supply of raw materials demand urgent attention. ☐

National Voluntary Organisations Serving the Disabled

G. Ravindran Nair*

GOVERNMENT have been doing its best to instil a sense of security in the minds of the disabled persons. But the task is so gigantic and the resources so meagre that Government action alone will not ameliorate the situation. Active cooperation of the people is imperative particularly in making the unfortunate handicapped brothren feel that they are useful citizens, the role of the voluntary organisations is also important.

Apart from numerous individuals, and institutions helping the physically and mentally disabled, there are some voluntary organisations, at the national level, doing yeoman's services for the welfare of the blind, the mentally retarded and the deaf and dumb.

National Association for the Blind

The National Association for the Blind, Bombay, (NAB) is a voluntary organisation working for the welfare of the blind throughout the country. The organisation, established on 19th January 1952, provides a common platform to all the schools, institutions and associations for the blind. The NAB looks after the general welfare of the blind, independently or in harmony with similar institutions. It takes steps to prevent and cure blindness. The Association promotes education and rehabilitation of the blind.

It conducts conferences of the blind and publishes braille literature. Also the institution promotes the manufacture of equipment needed by the blind.

The NAB has successfully persuaded the Government of India to establish the National Advisory Council for the Education of the Handicapped and the Special Employment Exchanges for the physically handicapped in different States. It also moved successfully several universities to grant special facilities and concessions to blind students. The NAB is now recognised by the State and Central Governments, the voluntary agencies and the public as a national body working for the welfare of the blind. Most of the schools, institutions and organisations of the blind in India are affiliated to the Association. It is also given recognition by the World Council for the Welfare of the Blind on which it has full representation. Scholarships and other forms of aid to the blind persons and institutions for the blind in India are all routed through the NAB. Notable among these, is the granting of four scholarships every year by the Prekins School for the Blind, U.S.A., to Indian teachers for the blind.

India's first P.M. Shri Jawaharlal Nehru with a handicapped child

The funds of the NAB come mainly from voluntary sources. Grants for specific purposes and activities are received from the State and Central Governments. It has its own employment and placement committee for the blind. Blind worker placed in open industries go through a three-month course of adjustment training in the Industrial Rehabilitation Unit set up by the NAB. The NAB has published braille books of general interest as well as text-books prescribed for the blind students in Maharashtra and Gujarat.

To prevent and cure blindness to the extent possible a National Society for the Prevention of Blindness was established in 1959 with its headquarters at New Delhi. To cater to the vast number of blind people living in the rural areas, the NAB started the Tata Agricultural and Rural Training Centre for the Blind (TACEB) on a 240 acre estate at Phansa, a coastal village in Gujarat. The House of Tatas provided the funds for the purchase of the estate. The Centre offers training in agricultural and rural pursuits to 50 blind persons every year. The TACEB is the largest training centre of its kind in the world and it receives world wide attention and financial help. The TACEB also serves as a training centre for instructors from the Afro-Asian world.

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* Editor, "Social Welfare".

The NAB has its own National Academy of Teachers of the Blind where systematic training is given to the teachers. It has its own home-teaching scheme. The first home-teacher for the blind in India was appointed in Bombay by the NAB in 1961. The duties of the home teacher include looking after the blind, helping them in their adjustment and rehabilitation, teaching them braille and different crafts and introducing them to the available welfare services.

The NAB has set up in Bombay the first ever sheltered workshop for the blind in India. The workshop located in a modern and spacious building was inaugurated on January 25, 1963. It has three sections namely industrial, contracts and light engineering and trains 100 blind workers. The Association has also its own talking books library. Besides, the prestigious projects mentioned above, other star institutions associated with the NAB are : Pheroze and Noshir Meswamriji Rehabilitation Centre for the Blind, the NAB-Home for Aging Blind, Lonavla in Maharashtra and NAB-Mata Lachmi Day Nursery for Blind Children, Bombay.

Royal Commonwealth Society

The Royal Commonwealth Society for the Blind (RCSB), established in UK in 1950, has spread its wings to many countries, including India. The RCSB's area of operation is mainly prevention and cure of blindness and rehabilitation of the blind. The South Asia Office of the RCSB, covering India, Bangla Desh, Sri Lanka and Pakistan, was established in Bombay, on January 1, 1970. They launched the "Eyes of India Campaign" in 1970 & organised seminars, 200 eye-camps in the States of U.P., Gujarat, West Bengal Kerala and Tamil Nadu. During that year alone they had examined more than 3 lakh people, treated 2 lakh and restored vision of 21,752 and prevented 6,587 people from becoming blind. As against this, in 1980, the RCSB organised 1774 eye-camps in 19 States and 3 Union Territories in India. More than 10 lakh people were given on-the-spot treatment, more than 31,000 people underwent surgery. In the course of the last 11 years through these camps, the organisation examined and treated more than 6 million villagers and restored vision to more than 7 lakh people. There are 60,000 children who go totally blind and 78,000 who go partially blind every year before their sixth birth day on account of Vitamin A deficiency. The Society has set up a pilot project for the control of malnutritional blindness in Gujarat, Tamil Nadu and U.P.

Deaf girls receiving training in Tailoring

Deaf students being given instruction in photography at the Photography Training Institute

At the all India level we have another organisation namely All India Blind Relief Society founded in 1946 at New Delhi. It seeks to prevent blindness and eye diseases, through eye dispensaries and eye relief camps, etc

Federation for the Welfare of the Mentally Retarded

Systematic efforts on forming an all India body exclusively for the mentally retarted started only in 1965 when the first All India Seminar on the Mentally Retarded was held followed by an All India Conference on Mental Retardation in 1966. Parents and workers in the field came together to form the Federation for the Welfare of the Mentally Retarded (FWMR).

The Federation is now recognised as a national body with 110 member institutions. It coordinates their activities and maintains liaison among them and the State or Central Government. It trains teachers and places such trained personnel in existing institutions or encourages them to start services of their own. Periodical refresher courses are also held for teachers and workers in special schools. It also enlightens the parent-guardians of retarded persons of the various facilities available. The Technical Cell of the Federation provides parent counselling, technical guidance for institutions, organising training courses for teachers and preparation of special papers on the welfare work for the mentally retarded. Under its guidance, a highly systematised and a fairly large-scale study was recently conducted by the FWMR on about 3000 children from 12 New Delhi Municipal Committee Schools.

The Federation has also recently held two seminars in Bangalore and Delhi on the role of trade and industry in rehabilitation of the retarded so as to enlighten industrialists and entrepreneurs on the profitable use of the services of the retarded persons. A number of regional seminars were held in different places. The Federation also hosted the Third Asian Conference on Mental Retardation in Bombay in November 1977, apart from organising five all India conferences since its inception.

The National Trust of the Federation has launched Sahan project at a cost of Rs. 1 crore in New Delhi. The Project provides facilities such as sheltered workshops, research centres, etc. Teachers are especially trained for work in the rural areas. Another agro-based project on a 35-acre plot at Yalahanka near Bombay has been taken up as a Home Development Centre.

One of the main aims of FWMR is to provide rural oriented services to the mentally retarted. More institutes are to be set up in Kerala, Manipur, Karnataka, U.P. and Rajasthan.

Service clubs and individual donors have helped the Federation to launch Foster Parent Scheme, by which a donor pays every month for the education and training of mentally retarded for a specified period. The scheme has become popular and even some international bodies have evinced keen interest in this project.

To ensure social security of the mentally retarded orphans, the Federation has been able to persuade the L.I.C. to work out a special Group Insurance Scheme. An important part of such a scheme is to build residential facilities for the retarded in several centres and to link these with suitable training of occupational units.

To encourage talent and creative potential, the Federation organises periodic exhibitions of the works of art and handicrafts made by the mentally retarded. These pieces are displayed in the last three annual international exhibitions of art, organised by the National Society for the Mentally Handicapped Children. They have won some coveted awards and merit certificates.

All India Federation of the Deaf

The All India Federation of the Deaf seeks to unite the deaf all over the country, strives for their all round welfare and rehabilitation, and projects their interests. The Federation maintains liaison between the deaf and the public, government and other authorities. It educates them on their rights and responsibilities. The Federation also started operating two of its own modern vocational rehabilitation institutes, namely, Printing Press Institutes for the Deaf (founded in 1962) and Photography Institute (founded in 1960). The Photography Institute offers training to the deaf students in still and movie photography and dark room practice. This institute has trained over 100 students in all. Photography is an attractive subject for the deaf and almost all the students trained in the Institute are employed either in the government service or in private organisations. Some of them are running their own business. Its expansion plan is under way and a scheme has been submitted to Government of India for further development of the Institute.

The Printing Press Institute for the Deaf, situated at Jandewalan Extension, New Delhi, is a prestigious training-cum-production centre of the Federation. Some of the existing machinery was donated by the Italian Federation of the Deaf through the World Federation of the Deaf. The Institute offers training in letter press technology. It gives stipends out of its own funds,. Today the organisation has got its own prestigious Multipurpose Centre for the deaf which houses, among other things, the National Institute of Electronic Engineering of the Deaf, Photography Institute for the Deaf and National Clothing Institute for Printing Technology for the Deaf. Quite soon a few more, like a National Institute of Speech, Special Education and Curriculum Development, Audiology, Referal and Placement Service Division and one or two more vocational institutes will be added to the growing complex.

We have also an All India Sports Council of the Deaf which is a full-fledged independent sports organisation and is affiliated to the International Committee of Silent Sports, Sweden. The Sports Council of the Deaf is at present organising football and cricket championships. Its representatives and sports athletes have participated in several national and international sports meets as well as the Olympics.

Domestic Energy Consumption....

(*Continued from Page* 9)

The following conclusions are drawn from the preceding discussion :

(i) The total domestic energy consumption was estimated to be about 131 lakh kilo calories per household and 18 lakh kilo calories per capita in the cultivator households and it was 89 lakh kilocalories and 18 lakh kilo calories respectively in the non-cultivator households.

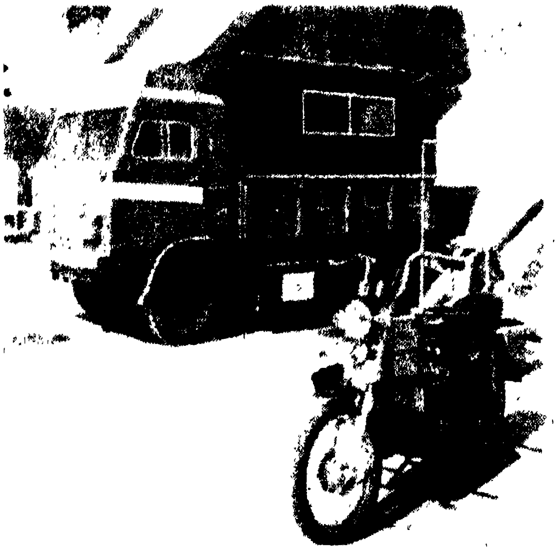
(ii) On an average a rural household was spending about Rs. 115 per capita for domestic energy consumption of which more than 75 per cent of the energy cost was on firewood.

(iii) Firewood was found to be the major source of domestic energy in the rural households and it provided more than 90 per cent of the domestic energy consumption.

(iv) Average annual per capita firewood consumption in the rural households was in the order of about 3.6 quintals.

(v) Among cooking and lighting, more than 97 per cent of domestic energy consumption was on cooking and therefore any improvement in cooking efficiency would result in higher energy conservation.

Successful installation of gobar gas plants in the rural areas would help conserve about 3.60 quintals of firewood and about 0.25 quintals of cowdung per capita in the study area.



Battery-operated truck and a motor bicycle displayed in the Fair

Ind
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Photos : K.
Write up : I

THE multi-nation colourful spectacle India International Trade Fair—had been successfully organised in New Delhi from November 14 to December 4, 1981. About 42 nations, in addition to India along with her States set up pavilions which rendered a feast to the eye, provided a glimpse of the industrial advancement achieved and a large scope to strike deals worth several crores.

India was ushered into a new era of telecasting when her colour TV was switched on for the first time from the studio of the pavilion "Reaching the Millions". The band of dedicated engineers and technicians of the research wing of the All India Radio and Doordarshan had been successfuly able to develop colour bar generator which was enough to launch the colour TV transmission. The stereophonic FM sound broadcasting technique, stereophonic console and a stereo decoder were the other important devices which were also fabricated by them.

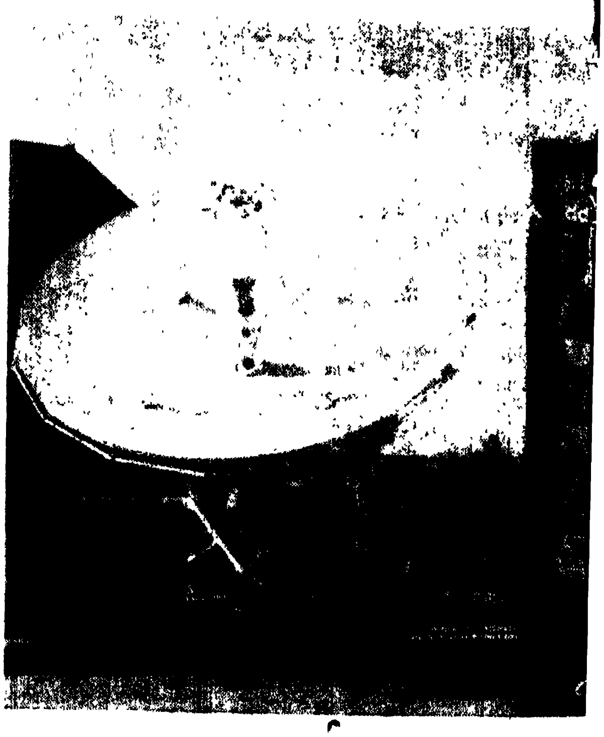
The energy pavilion was replete with prototype as well as commercial models of devices developed on various sources of energy like solar, biogas, alcohol, wind and so on. Very soon the solar cookers would flood the market. Solar cookers being manufactured in small industries sector would cost initially about Rs. 400 a piece and were 30 per cent cheaper than gas.

India's first solar powered telephone exchange was the star attraction of the communications' pavillion. When fully developed the exchange promises to establish an effective communication link in rural areas. A prototype of multi-audio TV with simultaneous six-languages audio-system was another important exhibit.

The Railway-pavilion's highlight was the latest electric locomotive of 4000 HP which could run at 160 kmph with 16 coaches. This would very soon haul the Rajdhani Express of New Delhi-Howarh Section. The prototype coaches and the EMU engine which would be pressed into the suburban service in Delhi before the commencement of the Asian games were also on display.

A number of organisations like the HAL, BEL, Mazagoan Docks jointly set up the defence pavilion. The pavilion tried to project their incessant efforts to develop techniques, devices and equipment of pinpoint accuracy to enable our army, navy and air force defend the nation. Outside the defence pavilion were the surface to air missile, Gnat and MIG fighters, floating bridge, looking at which no doubt we were inspired and felt proud of our combating capacity.

India's incessant efforts to unravel the mysteries of the space were vividly dipicted in the science and technology pavilion. Models of SLV-3 Rohini, Bhaskara, Aryabhata and other chariots of universe along



The transportable remote area communications term
Solar powered telephone being ope

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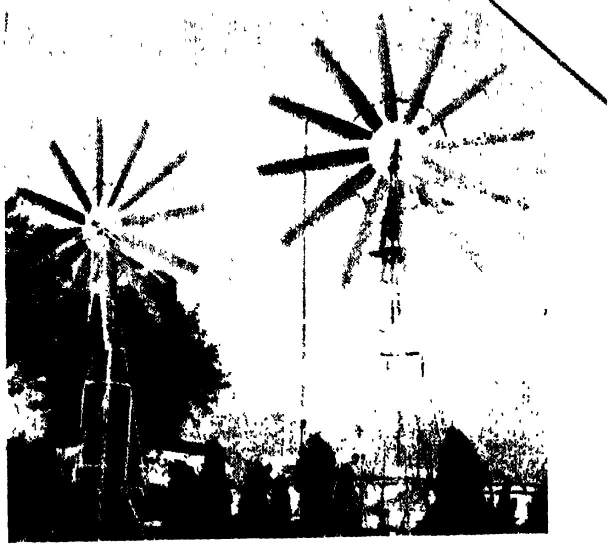
with the highly technical instruments which guided the vehicles had been displayed.

Other Ministries like agriculture, industry, works and housing etc. also put up their pavilions and proudly exhibited the good strides taken in their fields. Most of the public sector undertakings like the BHEL, STC, MMTC, Neyveli Lignite, Instrumentations limited, Kota rendered their pavilions attractive, educative and informative through models; photos and sometimes even real devices. The pavilion set up by the Minerals and Metals Trading Corporation had been drawing large crowds on account of the ingenuity shown in depicting the role of minerals and metals in shaping the universe. The MMTC's pavilion was adjudged the best one in the category of the public and private companies.

nal of the Space Applications Centre, Ahmedabad (left),
ented in the Communications Pavilion (right).



Wind Mills set up in the Fair

All the State Governments set up their pavilions, each excelling the other in art, architecture, ingenuity in display, but each one was a specimen of its kind in traditional and cultural exposition. They proudly displayed their industrial products and items of traditional excellence. All the States exhibited an array of items—items produced by them—heavy machinery, equipment, electronic devices, bicycles buses, trucks, tractors and so on. In addition, the traditional handlooms, handicrafts, the finest of the fine fabrics highlighted the speciality of each State. In each State one finds a happy harmony of products of modernisation, industrialisation and tradition, all items finished to perfection.

Coming to the pavilions of foreign countries one finds some of the most advanced electronic equipment which were instrumental in injecting various spacecraft into the space. The USSR's pavilion exhibited the largest number of items including models of some of their spacecraft and photos depicting the Indo-Soviet cooperation in science and technology. Some countries exhibited advancement far ahead of that of India, some were on par with us while some other nations yet to catch up with the trend. They not only displayed their latest heavy machinery, machine tools and know how, which were offered for sale but also devoted a section to depict their cooperation with India in various fields.

On the whole the India International Trade Fair created a meniature world to highlight the international coordination in ameliorating economic disparities, scientific and technological backwardness, and industrial inequalities. The fair was visited by over three million persons particularly on holidays the Ganga, Kaveri and other roads named after mighty rivers literally flowed with streams of enthusiastic crowds. As many as 50 trade delegations arrived from 42 countries. About 7,500 trade enquiries were made and business worth Rs. 500 crores was transacted.

U.P. Through the Plans

R. T. Tewari

IN Uttar Pradesh a number of developmental programmes have been implemented during the last 30 years of planning. But the goals and objectives of different plans have not been fully achieved, eventhough a huge amount has been invested in public and private sectors.

Raising per capita income has been one of the important objectives of our State Plans. The analysis of the data pertaining to aggregate and per capita incomes reveal that the State has undoubtedly made some progress in all facets of the economy. Plan-wise achievements of growth rates for India and U.P. are shown in Table 1.

Table 1.—Annual Rates of Growth in India and U.P.

Period	Total income		Per capita Income	
	India*	U.P.	India*	U.P.
I Plan	3.4	1.9	1.6	0.5
II Plan	4.0	1.8	1.8	0.2
III Plan	2.6	2.0	0.3	0.2
IV Plan	2.8	2.6	0.5	0.8
V Plan	3.8	3.0	1.5	1.2

* Net National Product.

The table shows that the annual growth rate of aggregate income in U.P. increased from 1.9 per cent in the First Plan to 3 per cent during the Fifth Plan, whereas the corresponding growth rate on all-India level increased from 3.4 per cent to 3.8 per cent during this period. Thus, the growth rate of aggregate income at the national level was higher than U.P. in each of the previous Plans. But its order of increase has been faster in U.P. than that at the national level. For analysing the higher growth rates of the State income during the previous decade, it would be relevant to discuss the extent of diversification that has taken place in U.P.'s economy during this period. The analysis of percentage contribution of income from different productive sectors indicates that the share of the primary sector in the total State income decreased from 60.2 per cent in 1970-71 to 51.7 per cent during 1978-79. But the corresponding percentage contributions of the secondary and tertiary sectors increased from 11.1 and 28.7 to 16.6 and 31.7 respectively. This diversification itself may be one of the factors that have affected favourably the growth rate of the State income during the period of the Fourth and Fifth Plans.

Upto the end of the Third Plan, our broad strategy of development was just to ensure that the economy expanded rapidly and became self-reliant and self-generating within the shortest possible period. But in the Fourth Plan, the growth rate achieved till then was found to be insufficient to better the lot of the masses. So the 'area approach' and the 'target group approach' were adopted from the Fourth Plan onwards. Special programmes like Small Farmers Development Agency (SFDA), Drought Prone Area Programme (DPAP), Integrated Tribal Area Development Programme (ITADP) and Hill Area Development were vigorously launched, besides National Programme of Minimum Needs and Integrated Rural Development. Probably, the implementation of these programmes has affected favourably not only the overall growth rate of the State income but has also helped in reducing the incidence of poverty to some extent. The proportion of people living below the poverty line in U.P., which was 63.19 per cent in rural areas and 49.52 per cent in urban areas during 1973-74, has significantly decreased to 47.85 per cent and 43.53 per cent respectively in 1979-80.

Moreover, the growth rate of aggregate income in U.P. has always been greater than that of population. The growth rate of per capita income in different plans has been fluctuating between 0.2 and 1.2 per cent per annum. But the growth rate of aggregate income of U.P. for the period 1970-78 was lower than that of other States except Kerala and Rajasthan. The percentage of unemployed and underemployed persons to the total labour force in the State decreased marginally from 7.40 in 1972-73 to 7.37 during 1979-80, although their number increased from 23.5 lakh persons to 26.47 lakh persons during this period. From the above discussion it is clear that higher growth rate during seventies reduced poverty and unemployment but failed to narrow down regional inequalities.

Agriculture

Agriculture plays an important role in the State economy. Agricultural production has gone up. Growth rates achieved in agriculture during the past have been considered here as an indicative of its overall performance in the State. The agricultural growth rates for the State along with its regional break up are given in Table 2.

Table 2.—Agricultural Growth Rates

(Per cent)

Region	Growth Rates During	
	1968-69 over 1960-61	1975-76 over 1968-69
Western	1.2	3.5
Central	0.8	1.7
Bundelkhand	(−)1.3	1.4
Eastern	1.3	1.7
Hill	1.3	4.7
U.P.	1.0	2.5

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* Senior Fellow, Giri Institute of Development Studies (GIDS), Lucknow.

The agricultural growth in the sixties was erratic but picked up during seventies. Its growth rate increased from one per cent in the period 1960-69 to 2.5 per cent during 1968-76. The corresponding Indian growth rate during 1968-76 was about 3 per cent per annum. Hence the performance of agriculture in U.P. is not promising. The yield per hectare in U.P. is still lower than the national average for various crops as shown in Table 3.

Table 3.—Average Yields and Intensity of Cropping During 1977-78.

(Quintals per ha.)

Crop	Average Yield	
	U.P.	India
Paddy	10.69	13.17
Wheat	14.62	14.77
Sugarcane	469.00	583.00

Despite various efforts to bring more area under the plough the net area sown during the plan period has not increased considerably. The gross crop area showed only nominal increase in the State during the period 1970-79. Consequently, the cropping intensity, which was about 134 per cent in 1970-71, could increase to only 139 per cent during 1978-79. There has been a considerable increase in the area under high yielding varieties of wheat and paddy from 1966-67 onwards. Irrigation has to play a significant role in raising cropping intensity and augmenting the level of agricultural production. The total irrigation potential for about 163.09 lakhs hectares has already been created in the State through different sources, but its utilisation under major/medium and minor irrigation works is considerably low, that is 80 per cent and 55 per cent respectively.

About 86 per cent of the total land holdings in the State belong to small and marginal farmers. A majority of these farmers are living at subsistence level. The Government have already launched a variety of programmes based on area development and target group approaches with a view to making their economy viable by way of integrating their farming with allied sector activities.

Before comparing the State with Punjab and Haryana and trying to adopt agricultural model of one of these States it is necessary to know the infrastructural facilities like roads, power and marketing available in U.P. The length of surfaced roads per hundred square kilometres of area in U.P. is 17 kms as against 34 kms. in Haryana and 53 kms. in Punjab. Similarly, per capita consumption of electricity in U.P. is 80 KWH, whereas these figures for Haryana and Punjab are found to be as high as 172 KWH and 227 KWH respectively. These infrastructures in U.P. should be brought at par with these States before adopting any agricultural model.

Industry

Industrial development was given priority in the State during the Second Plan and many large and medium scale units under Central and State sectors were established, besides launching the programme of industrial estates. To bridge the regional inequalities, the programme to industrialise backward areas was started at the beginning of the Third Plan. As a result of the above measures, the growth rates of industrial sector achieved during the Third, Fourth and Fifth Plans were as depicted in the following table :

Table 4.—Industrial Growth Rates in U.P.

(Per cent per annum)

Period	Growth Rates in		
	Registered Industries	Un-registered Industries	Total manu-facturing
Third Plan	7.1	4.4	5.7
Fourth Plan	9.2	2.1	5.2
Fifth Plan	14.0	5.1	8.2
1960-69	5.8	2.9	4.2

From the above table it is clear that the performance of registered industries in total manufacturing sector during this period was much better than that of unregistered industries. Moreover, the contribution of registered industries to total manufacturing sector, which was 41 per cent in 1960-61, appreciably increased to 48.5 per cent and 53.5 per cent at the end of the Fourth and Fifth Plans respectively. But the percentage share of the whole manufacturing sector to the total State income has shown only nominal increase from 9.27 in 1973-74 to 10.20 during 1978-79. Thus, the industrial sector achieved satisfactory growth rates but its contribution to the State income is not encouraging.

In the large and medium industries sector, the number of private units registered increased from 242 in 1970 to 340 during 1978, producing goods worth Rs. 501 crores and 1,462 crores respectively. But the employment in this sector during the period increased from 1.67 lakhs to 1.78 lakhs only. On the other hand, as a result of various promotional programmes undertaken for development and diversification of small industries in rural and semi-urban areas, the number of village and small scale industrial units increased significantly from 12,851 in 1972-73 to 43,159 during 1979-80, giving employment to 5.38 lakhs persons and producing goods worth Rs. 9.80 crores. In 1977, with productive capital investment of Rs. 1 crore, the number of persons employed in small industries sector was 654 as compared to only 189 persons in large and medium industries. Thus to create more employment in the State, development of small scale industries sector requires special treatment on priority basis particularly in backward areas.

There is still a sharp contrast in levels of industrialisation between the backward and non-backward districts of the State. The percentage contribution of industrial sector to total net domestic output polled together for all backward districts in 1975-76 was 7.86 only, the corresponding percentage for non-backward districts was as high as 33.11. Similarly, the contribution of backward districts to the total income of industrial sector at the State level was 24.74 only, whereas the corresponding contribution of non-backward districts was quite high (75.26 per cent). A higher level of industrialisation in non-backward districts may be attributed to the fact that firstly these districts are having relatively strong industrial base and secondly they are more advanced in respect of either agricultural development or availability of resource potentials or infrastructural facilities.

Uttar Pradesh still lags behind its counterparts in industrial development. The percentage contribution of industrial sector to total net domestic product at the national level during 1975-76 was 15.70 whereas the corresponding percentages in the case of other States were : 10.86 (Gujarat), 13.22 (Bihar) and 16.48 (Andhra Pradesh). The inadequacy of Central and State investment in industrial sector seems to be one of the important reasons of industrial backwardness of Uttar Pradesh. Of the total State Plan outlay for the period from the First to Fifth Plan, the outlay for the industry and mining sector works out to only 5 per cent against the corresponding percentage of 24 for the country. Moreover, the Central sector investment in the State upto 1977-78 accounts for only 4.2 per cent of the total investment made in the country.

Availability of a critical minmum level of industrial base in terms of agglomeration of propulsive industries at urban centres seems to be the necessary condition for accelerating the pace of industrialisation in both the backward and non-backward areas.

Thus current strategy of development has reduced the incidence of poverty and under-employment to some extent. But it failed to arrest the widening regional inequalities. The achieved growth rates have not been sufficient to reduce poverty and unemployment. The present performance of agriculture in U.P. compared with all-India level, Punjab and Haryana, is considerably low. A majority of the small and marginal farmers are living at subsistence level. The industrial sector of the State needs area-wise planning based on inter-related character of different industrial activities and also suitable modifications in the current strategy of industrial development. □

A New Deal for Migrant Labour

Odeyar D. Heggade*

ONE of the salient features of Labour Welfare Programme under Sixth Five Year Plan (1980-85) is to protect and promote the employment, wages and working conditions of the most vulnerable labour population like women, physically handicapped persons, children, migrant shephards and inter-state migrant labour etc. The Sixth Plan Draft explicitly states the need and methods to ensure social justice for inter-state migrant labour. This is a welcome approach because it seeks to provide a 'new deal' or the most exploited inter-state migrant labour

The Problem

Due to poverty and under-employment rural labour has been migrating in search of better full-time work opportunities. The rural labour generally speaking, from drought prone areas and other backward and thickly populated areas of some States has been migrating to other agriculturally prosperous areas and new project areas, where irrigation projects and factories are under construction. The unskilled labour of Western U.P., Rajasthan, Western Madhya Pradesh used to move to agriculturally prosperous areas like Punjab and Haryana. Similarly the unskilled labour from Bihar, M.P., U.P., etc. used to move to tribal belts of Central India.

The unskilled rural labour from Andhra, Tamil Nadu and Kerala used to migrate towards the developing agricultural areas of old Mysore and plantation region of Western Ghats of Karnataka. Similarly the labour of Northern Karnataka tend to more towards Southern parts of Maharashtra and Western parts of Andhra Pradesh. The drought prone and highly uncertain and insecure working conditions. 'supply points' of cheap labour.

The inter-state migrant labour force comprises of male, female and child labour. They work in highly uncertain and insecure working conditions. The problems faced by them may, however, be briefly stated as follows :

1. The inter-state migrant labour is generally employed for a definite period on a particular kind of job. The employment is seasonal.
2. Generally wages are paid on daily basis. In majority of the cases the contractors who hire such labour force pay even less than the minimum wages fixed under the rules.
3. Lengthy hours of work, low wages and absence of social security benefits are the general rule.
4. The inter-state migrant labour generally faces the problems of housing, bad working conditions, cheating etc.
5. Even among this kind of labour, women and child labour is the most exploited. The sexual exploitation of women workers by contractors, project officials etc., have been increasing.
6. Whenever labour disputes arise due to various types of exploitation, often the labour again is found in the street. The contractors either remove them from job or use the 'musclemen' to stifle the protests.

Sixth Plan Approach

The problems of inter-state migrant labour being very peculiar do not draw the necessary support from organized labour to combat against the exploitation. The city labour welfare officials also generally pay less heed to pleas of migrant labour for protection. Because it cannot emerge as a vital, permanent labour pressure group. In view of these adverse factors, the Government of India has enacted the Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979 and subsequently by framing rules the Act came into effect from 2nd October, 1980. This Act provides for: (a) registration and licensing of establishments and contractors; (b) each employer should issue a pass book to each of his employees entering all details about nature and length of job, wages and other benefits paid compulsorily; (c) the inspection by appropriate authority about the implementation of the Act; and (d) employer's responsibility to cater to the housing, health and clothing requirements of his employees.

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The Inter-State Migrant Labour face peculiar problems : low wages, lack of housing facilities etc.: they get no support from the organized labour to combat against the exploitation.

The Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979 will be implemented by creating suitable administration and organisational infrastructure at Centre and State levels. The Sixth Five Year Plan (1980-85) outlines the steps and methodology followed in this direction. They may be enlisted as under:

1. A statutory body entitled 'Migrant Labour Board' would be set up by representing the Ministries concerned viz., Labour, Social Welfare, Works and Housing and Irrigation. The Board is equipped with all necessary executive powers to implement various aspects of protective legislation of 1979 affecting migrant labour. This Board will also be provided with the power to revoke or withhold the licences of the employers of the migrant labour who do not honour the regulations of the Act.

2. The activities of the 'Migrant Labour Board' will be financed by the cess levied on the total investment of the projects which use migrant labour-force. The cess has to be the permanent item of the tender of such projects.

3. The Board will be empowered to constitute a 'Migrant Labour Cell' to support its main functions with an army of efficient, highly mobile and dynamic social workers. The basic functions of the 'Migrant Labour Cell' are: (a) to disseminate vital employment information to migrant labour, and (b) to work in close collaboration with the health and educational departments of local authorities to provide such services for migrant labour. In other words, the Migrant Labour Cell has to strengthen the functioning of the Board in all its spheres of activities.

4. The Board will also be empowered to set up creches, non-formal educational centres and other kinds of social service centres for the benefit of migrant labour and their children. Such services could not be provided by contractors. Thus some contributions shall be collected by the Board in some form of fee or additional cess etc. In addition to this, the Board should also find extra resources to finance the different development activities of all the social and educational service centres.

5. The Migrant Labour Board has been empowered to make suitable budgetary provisions for training the social workers, extension, social and educational service staff etc.

Some Missing Links

The proposed "Migrant Labour Board" as an apex body at Centre and State levels to be set up for safeguarding and promoting the interests of migrant labour is a welcome development. Though all possible care has been taken to constitute the Board efficiently, still there are some 'missing links' which may be briefly stated as follows:

1. The finances mobilized through levying cess on the total project investment and collected from the contractors may not be sufficient for discharging a large number of social service responsibilities entrusted to the Board.

2. The Sixth Plan while emphasising on the structure of the proposed Board, do not clearly specify the sources from which the dynamic team of social workers would be drawn to constitute a 'Migrant Labour Cell'.

3. The proposals about the organizational structure of the Board, do not clearly specify the magnitude of commitment involved on the part of local authorities. Moreover, in majority of the urban areas the local governments are financially weak. It is doubtful that the local authorities are really capable of funding and cooperating with the city offices of the proposed Board to safeguard the interests of the migrant labour.

Therefore, while finally setting up the 'Migrant Labour Board' at Centre and State levels to promote the welfare of the target group, the above-mentioned loopholes should be eliminated. However, the implementation of protective legislation for the betterment of migrant labour in future is a right step in ensuring social justice. ☐

National Awards for Child Welfare, 1981

THE 1981 National Awards for Child Welfare have been given to two institutions and one individual. The institutions are Anand Vatika Bhagini Mandal, Bhavnagar, Gujarat and Uttar Pradesh Bal Kalyan Samiti, Lucknow. The award for the individual has been given to 76 year old Smt. Subhadra Amin Chand of Simla.

The institutional award is a citation and a cash award of Rs. 100,000. The cash award will be divided equally between the two awardee institutions of 1981. The national award to an individual is a citation and a cash award of Rs. 20,000. Since the awards were instituted in the International Year of the Child in 1979, this is the first time that two institutions have the award at a time.

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ELIGIBILITY : The scheme will be open to all persons except those employed in the Department of Personnel and Administrative Reforms. As this is the first year of the awards, all original books published upto 31st December, 1981, manuscripts and Hindi translations of standard books in the fields of public administration and management sciences will be considered for the awards.

SELECTION : The award-winning books will be selected by an Evaluation Committee whose decision in regard to awards will be final. All or any of the awards may not be given if the evaluation committee finds no entry meriting awards.

Last Date for receipt of entries is 31st March, 1982. Entry form and further details can be had from :

Under Secretary (Admn.),
Department of Personnel & Administrative Reforms,
5th Floor, Sardar Patel Bhavan, Sansad Marg,
New Delhi—110001.

davp 561 (428)81

Joint Ventures Abroad —A Retrospect

S.R. Madan* and R.R. Azad**

ALTHOUGH India's efforts in encouraging and promoting joint ventures across the national frontiers are of recent origin, her experience and expertise particularly in the intermediate technology ranges are considered relevant to the programmes of industrial development of a number of developing countries. Being a natural evolution in international trade and economic relationship, the concept of joint ventures abroad has in fact been accepted as a part of strategy for export promotion. Successful joint ventures not only yield benefits in the form of foreign exchange earnings from dividends, technical know-how, fees etc., but also project India's image as a supplier of capital goods and technology in the developing countries. They are also useful for expanding already established export markets and opening new avenues for exports.

Following is the latest over-all position of approvals granted to Indian companies by the Government for setting up joint ventures abroad and also the present status of these approvals as on August 31, 1980 :

(a) Total number of approvals granted	399
(b) Joint ventures in production operation	177
(c) Joint venture proposals under various stages of implementation	87
(d) Joint venture proposals (including approvals in principle only) that could not be implemented.	161
(e) Joint ventures which were in operation for some time but now stand abandoned.	34

After having secured independence in the fifties and seventies, many of the African countries looked upon India as a model for economic development. As a result of this Indian entrepreneurs got attracted towards them for joint ventures. However, in the seventies a percentible orientation towards South-East Asia was visible when a large share of investment went to countries like Malaysia, Indonesia, Singapore and Thailand because of the incentives offered by them. South-East Asia has the largest number of Indian joint ventures, i.e. 57 followed by Africa 24, West Asia 17. European countries 9, USA 5, South Asia 4 and Australia 1.

In terms of investment, South-East Asia (61 per cent) stands as number one followed by Africa (34.1 per cent), West Asia (2.1 per cent) and Europe, America and Australia (1.9 per cent). South Asia is on the lowest rung of the ladder (0.7 per cent). Of late, there has been a revival of interest in Africa in general and Nigeria in particular.

Concentration of investment in South-East Asia and Africa has undergone a relative decline in respect of units under implementation resulting in a corresponding shift in the share of investment mainly in favour of South Asia and other advanced countries. A shift is also visible in the relative position of some countries in terms of proposed investment. Malaysia (34.8 per cent), and Kenya (26.3 per cent), which figures as leaders in the units in production, have been replaced by Indonesia (22.2 per cent) and Nigeria (21.2 per cent).

Viewed from the angle of the field of collaboration we find that the maximum number of joint ventures abroad in operation fall in the field of light engineering (32) followed by textiles (16), hotels and restaurants (14), food and food processing (13), chemicals and pharmaceuticals (9), trading and marketing (9), oil seeds crushing and fractionation (7), consultancy (6), iron and steel products (5), engineering contracts and construction (4), and others (12). In terms of investment in the share capital, textiles hold the first position (28.5 per cent), followed by oil seeds crushing and fractionation (19.5 per cent), light engineering (17.9 per cent), pulp and paper (14.6 per cent) and chemicals (4.6 per cent) and so on.

One of the problems of India's foreign collaborations abroad is that of non-implementation of the proposals. Out of the 399 approved proposals 161 were not implemented during 1970—1980. 117 went into operation or production, 87 are under implementation and 34 have been abandoned. A sizeable number of the un-implemented proposals i.e. 65 (40.4 per cent) relate to the period of 1970 and before when approvals were granted without adequate scrutiny. Of the remaining 96 cases which failed to take-off the ground 57 (35.4 per cent) pertained to the period between 1971 and 1975. The percentage of proposals that remained un-implemented between 1976 and 1980 worked out to 24.2. Although there has been a gradual decline in the percentage of proposals not implemented, yet this feature of the joint ventures abroad involves wastage of a lot of time money and efforts on the part of the collaborators. It is, therefore, essential that we should have a thorough scrutiny of the proposals before they are accorded approval.

As many as 34 joint ventures have been abandoned. Some of them have been hit by technical problems while others for their inability to adjust themselves to a new marketing environment. A few other enterprises found it difficult to survive in the face of relentless price competition from imports in the host country.

A study of the performance of India's joint ventures abroad makes it clear that the joint ventures could hardly be depended upon for achieving the objective of augmenting foreign exchange earnings. This is clear from the fact that the additional export earnings generated by these ventures amounted only to Rs. 16.8 crores in 1979-80. These earnings represent only a very small fraction of the total export earnings of Rs. 6,400 crores of the country during 1979-80. Over the years the number of joint ventures has, no doubt, gone up but their contribution to exports has almost remained stagnant. It was Rs. 14.7 crores in 1977-78 and Rs. 16.1 crores in 1978-79.

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* L.N. College, Rohtak.

** C.R.M. Jat College, Hissar.

The claim of the Commerce Ministry about the role of joint ventures in helping to project India's image abroad, also does not hold good. A close look at the functioning of India's joint ventures abroad falsifies this claim. The record of some of top business houses in respect of joint ventures has not been clean. Some of the Indian collaborators, for example, have, in fact spoiled the country's image in countries like Malaysia. For ensuring an improved image of the nation in respect to the performance of the country's joint ventures abroad it is suggested that the Government should accord their approval to such Indian private companies which have proved their creditworthiness beyond doubt.

India's joint ventures in West Asia belong to the field of construction services. In the West-Asian countries the foreign parties are allowed to enter into joint venture agreements only after they allow local participation and the foreign parties abide by the existing official regulations. Indian companies are facing difficulties in these countries because our equipment does not find much of a place either because of objections raised by the consultants of the project or because of the inability of our manufacturers to supply right type of products at the right time. If Indian parties have to continue their joint ventures effectively in these countries and expand their exports, equipment suppliers will have to gird up their loins for a major marketing thrust in the region and supply equipment to the satisfaction of the consultants.

In spite of the inadequacies reflected in the functioning of joint ventures abroad and the problems faced by them, they should not be judged merely from the view point of tangible benefits such as dividends etc. drawn from them, but also from the viewpoint of their demonstration effects to project the quality of Indian equipment and technology. Our joint ventures located in the developing countries contribute to the process of their economic development. The resultant political goodwill created by such ventures also needs to be recognised. Though commercial profitability has been showing some distinct signs of improvement with more commitment on the part of the Indian entrepreneurs, yet there is a great scope for improving commercial profitability of joint ventures which are outposts of Indian technology abroad for acquiring a more credible image. □

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A view of the cutting and tailoring section under the Trycem Scheme of Goalpara District Industries Centre.

Impact of District Industries Centre in Goalpara District

C. K. Sarma*

THE rapid industrialisation of an industrially backward area like Goalpara district has been a challenging task in the absence of congenial industrial atmosphere and infrastructural facilities. Despite its vast potentialities, the district has far long remained industrially much backward in comparison to other districts of the State. The new industrial policy of the Central Government has, however, made a visible impact on the small scale and cottage industries sectors of the district. A District Industries Centre was set up in the district with headquarters at Gauripur in January, 1979 under this new industrial policy which aims at shifting the focal point of industrial development activities from big cities and towns to the rural growth centres by providing package of incentives and concessions to attract entrepreneurs to start industries in the selected line. The main objective of the District Industries Scheme is to provide required services and supporting facilities to the small scale entrepreneurs and rural artisans under one roof to obviate the need for them to move from office to office to elicit material information for starting industries of their choice. The services and facilities offered by the D.I.C. include indentification of entrepreneur, preparation of suitable schemes and feasibility reports, arrangement of machinery and equipment on hire-purchase, supply of scarce raw materials, liberalised finance, industrial accommodation, training facilities, research and extension services, and marketing of finished products.

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*General Manager, District Industries Centre, Gauripur, Goalpara.

Action Plan

The District Industries Centre, Goalpara, Gauripur has prepared an action plan suggesting suitable small scale and artisans industries. This Rs. 14 crore five year plan for implementation during 1979-80—1984-85 took into consideration the availability of resources, skills, finance etc. with specified locations in Goalpara district. Under the plan the deserving local entrepreneurs are to be provided with various incentives and facilities in the form of power and transport subsidies, machinery on hire-purchase, liberalised bank finance, industrial accommodation and consultancy services. A separate provision for the Scheduled Caste and Scheduled Tribe entrepreneurs has also been made under the integrated tribal development programme and Scheduled Caste component scheme with similar facilities, incentives and concessions.

Meanwhile, this DIC has indentified more than 250 local entrepreneurs through industrial motivation training campaigns, seminars and discussions held at various places of the district. And many of those indentified have started their industrial ventures with necessary guidance from this DIC. Uptill now, this DIC has issued provisional registration to 361 S.S.I. units of which 94 provisionally registered S.S.I. units have already gone into production providing employment to more than 600 persons on a regular basis. The D.I.C. has granted industrial loans under State and Central Schemes and has arranged bank loans of Rs. 15,75,392.00 to 105 S.S.I. and cottage units.

In addition to the above achievements the DIC has provided 1,460 M.T. of scarce raw materials like cement, paraffin wax, iron and steel materials and more than 500 bundles of yarn to 48 small and cottage units of the district. The DIC has also been able to provide accommodation facilities at subsidised rent to 34 S.S.I. and cottage units in the existing Industrial Estate, New Bongaingaon, Commercial Estate at Dhdhnai and Common worksheds at Gauripur, Bilsapara and Lakhiganj. Under the R.A.P. programme the DIC has organised training facilities for more than 166 women entrepreneurs in different trades like weaving, knitting and embroidery and cutting and tailoring and provided them material assistance in the form of equipment and raw materials as a measure of follow-up action for the passed out trainees to enable them to establish their own industries. Under the TRYSEM programme, the DIC is at present organising stipendary training courses in several blocks in different trades like weaving, knitting, tailoring, blacksmithy, carpentry, cane and bamboo works and leather goods manufacturing on receipt of funds from the S.F.D.A. Dhubri for the rural unemployed boys and girls. Upto now more than 1000 rural youths have been enrolled in the training courses which are in full swing.

Needless to emphasise that this DIC has initiated a large number of measures for rapid industrialisation of the district keeping in view the various incentives and concessions now available under the DIC scheme. Some of the notable industries started under the direct patronage of the DIC by local entrepreneurs are stone crushing, printing press, jute balling, wooden plug, umbrella assembling, ball pen refill, hand-made cottage match, wooden furniture, ready-made garments, soap and candle stick, sodium silicate, steel fabrication, dairy products, water pipes, dhupkathi ice candy cream, citronella oil, saw mill, biscuits and confectionary items etc. The dairy products and hand-made cottage match have been developed in the co-operative sector.

A few more sophisticated industries like calcined cock, gang switch, paper cartons, tannery, umbrella ribs, stainless steel, pesticide formulations, nuts and bolts manufacturing are in the process of commissioning very soon. Accommodation facilities for these industries in the existing Industrial estate have been given wherever possible. Besides, two co-operatives have been encouraged for manufacturing hand-made cottage match at Bijni and Lela along the northern and southern boundaries of the district respectively. These cooperatives will begin operation soon.

Traditional Industries

The traditional handicrafts of the district are playing a vital role in rural economy of the district. The important traditional artisan industries of the district include tailoring, blacksmithy, cane and bamboo works, pottery, tile making, pitchcrafts (Kuhila), terra cotta, ivory, decorative textiles and sericulture. Among the traditional and artisan industries, handloom weaving and home spinning occupy major segment of the industrial sector of this district which is providing part-time employment to more than 2 lakh rural skilled workers. Next to handloom weaving, pottery and kuhila work are two important artisan industries in Goalpara district providing employment to more than 2,000 families as a full-time occupation with concentration at Mornai, Bilasipara, Chapar, Gauripur, and Golokganj areas of this district.

Conclusion

Goalpara district is gifted with vast natural resources and manpower and if they are properly harnessed for industrial utilisation they can go a long way for rapid industrialisation of the district. Unfortunately, its resources and manpower were not fully exploited in the past. As a result industrial development remained stagnant over the years. From the data available it is evident that the forest and agricultural products form nearly 80 per cent of the potential economic resources of the district and can provide substantial employment to the local youths. But, despite their potentiality to serve as a strong base for industrial development activities, the growth of small-scale and cottage industries has so far remained most sluggish. Thus, except for a handful of conventional industries like few printing presses, saw mills, rice and atta chaki, oil mills a few brick manufacturing units, tile making units, one steel almirah making unit, one basket factory, one wire-drawing unit, one match splint and veneer making unit in the Government sector, one roller flour mill, one rolling mill, two aluminium utensil units, one silicate manufacturing unit and one match factory in the organised sector, there were no sophisticated industries in Goalpara district. However, a new industrial climate has been created by the DIC. The establishment of a few large scale undertakings like BRPL, Ashok Paper Mill and Bongaigaon Thermal Station has heightened the prospects of industrial development.

GOVERNMENT OF INDIA

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TRANSPORT WING

Notice inviting offers from Consultants for pre-bid qualifications for the work of undertaking preparation of 15-year perspective plan for long-term containerisation programme.

* * *

The Ministry of Shipping & Transport invites offers for pre-qualification from the reputed consultants both from India and abroad, willing to undertake the preparation of a 15-year Perspective Plan for long-term containerisation programme in India. The proposed study is to:—

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(iv) identify institutional, operational and allied requirements:

(v) indicate details of the schemes and alternative strategies, approximate investments therefor and evaluate economic viability and financial return ;

(vi) propose appropriate time-phasing of integrated development of facilities.

The consultants from abroad should associate with an Indian consultant for the study. In such a case, they should clearly specify the experience of the Indian associate and areas, extent and nature of such association. The study should be completed within a period of nine months.

The consultant intending to participate in the study should submit the following documents/particulars on or before 15th January, 1982, to the Development Adviser, Ministry of Shipping & Transport, Room No. 528, Transport Bhavan, New Delhi-110001 :

1. Qualifications and experience of personnel to be detailed for the study.
2. Details of projects/studies of similar nature undertaken during the last five years.
3. Details of experience in related fields.
4. Particulars of the Indian associate, with details of their experience and areas, extent and nature of such association. The written consent of the Associate will have to be submitted along with the offer.

The consultants finally selected on the basis of experience and capabilities, shall be supplied with the terms of reference for the study and asked to quote. It must be clearly understood that the proposed study is complete by itself and that the Government of India, shall be free to make use of the report in any manner they like for developing containerisation in India.

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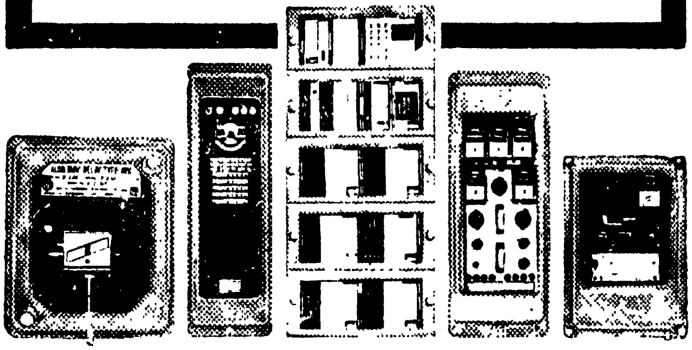

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Welfare of the Disabled in U.P.

THE State Social Welfare Department has been chalking out and implementing State-wide welfare programmes for the disabled and handicapped persons. There are three schools for education, training and rehabilitation of the deaf and dumb at Agra, Bareilly and Farukhabad which provide high school-level education. These schools have a capacity of 100 to 150 students. These schools have hostel facilities for all the students. In addition, scholarships of Rs. 100 per month are given to the students whose family income is below Rs. 500 per month. The Agra school has a training centre and attached workshop. This has residential facilities for 50 students and the Government provides Rs. 100 per month to every resident student for their maintenance.

For the benefit of the blind, there are three schools at Lucknow, Gorakhpur and Banda which provide high school-level education. They help rehabilitate these people after training them in various trades. Three workshops for the blind are also functioning at Banda, Lucknow and Gorakhpur. Here the blind are provided work on work-charged basis for which they are paid wages. When there is no work, they are given non-working allowance at the rate of Rs. 2 per day. One school at Saharanpur for the blind girls provides education upto junior high school education with residential accommodation. For the blind girls a training centre and attached workshop has been established in Gonda which has a capacity of 100 girls to provide training in various trades.

Residential schools, each at Lucknow and Allahabad provide education to the mentally retarded children. Each school has capacity of 50 children. There is also provision for imparting vocational training to these students in the school, the administration is spending Rs. 100 per month per student on their maintenance. The students, whose family monthly income exceeds Rs. 400, have to bear their expenses themselves.

There are two residential schools in Pratapgarh and Lucknow districts with a capacity of 50 students each for the welfare of physically disabled and handicapped persons. The Government bears the cost of students maintenance in these schools which provide education upto high school. There are two attached workshops at Allahabad and Mirzapur for the training of physically disabled and handicapped. They have residential facilities for 50 and 40 students respectively. These workshop provide training in various trades and provide them work on work-charge basis. A multi-purpose workshop and production centre has been established in district Unnao which provides training in various trades. This has a capacity of 100 persons. Fifty of these are provided with free boarding and lodging and the 50 non-residents are given work on work-charged basis. Efforts are being made to launch the pilot project for the integral education for the disabled at five select town in the States.

Awards and Financial Assistance

Arrangements have been made to disseminate information regarding facilities available to the disabled for the training, education and other activities. The State has a scheme to give awards to the outstanding disabled employees, self-employed disabled, employers of the disabled and placement officers in the States.

There is provision for a maximum grant of Rs. 500 per individual for the purchase of artificial limb hearing aid, wheeled chair, tricycle and a pair of spectacles for the physically disabled persons. Disabled students whose family income does not exceed Rs. 500 get scholarships.

Such students whose parents are disabled and their income does not exceed Rs 500 per month get scholarships.

Financial assistance of Rs. 50 per head per month is given for the maintenance of disabled destitute persons. Voluntary organisations enaged in the welfare work of the disabled get financial grants.

Employment

Special cells in the Employment Exchanges for the employment of the disabled in the State have been set up at Lucknow, Varanasi, Agra and Allahabad.

All the employment exchanges in the States sponsor their name for the vacant posts. They are given vocational guidance keeping in view the educational qualification, vocational skills, family background and physical disability. They inspire the disabled for self-employment and help them in getting loans from the banks. They provide suitable guidance and information to run the desired trade or profession.

There is a Special Employment Exchange for the disabled at Kanpur. It registers the disabled, sponsors their names to the employers, gives vocational and industrial training and vocational guidance and helps them get medical examination by the Medical Board. It coordinates between Employment Exchanges of the States and finds employment for the registered disabled persons. It collects statistics of the disabled at the State-level and supplies the same to individuals and institutions.

Relaxation in age limits have been provided for the disabled in the recruitment to State services and posts.

Health

The State has been providing free medical examination and taking necessary action for the removal of disability. In addition the medical and family welfare officers and field officers of the Revenue Department under take the following activities. They prepare the list of disabled persons with the help of the Tehsildar.

Medical facilities were made available to the disabled keeping in view medical needs of such persons from March 1 to 15, 1981, in all the districts hospitals and primary health centres.

Putting up of a notice board about medical facilities available for the disabled at all district hospitals and primary health centres and setting up separates counters for them.

Implementation the programme of medical examination and education for all the children studying in schools in the districts with a view to preventing the disabilities relating to eyes and ears.

Mobility

The blind passengers travelling by Govt. buses get 50 per cent concession. Also the physically disabled passengers get 50 per cent concession in the bus fares.

With a view to providing employment to the disabled 2 per cent vacancies have been reserved in the Class one, two, three and four posts in the State services. Local bodies reserve 10 per cent shops for the blind, deaf and the crippled.

Agro-Industries in and around Salem District

Dr. R. Cauvery and Prof U. K. Sudha Nayak *

Along with the creation of more employment in the rural areas through the development of agriculture there is need for diversification of rural occupations. Changes that are taking place in the countryside warrant an enlargement of the employment opportunities. But employment should be meaningful i.e. it should be all the year round and have an impact on the living standards of the poor who constitute the bulk of the rural population. Needless to say, the development of agro-industries in rural areas is an important means to this end. And Salem District in Tamil Nadu has immense potential for the development of rural agro-industries.

With 70 per cent of its population depending on agriculture Salem is fast emerging as promising industrial district of the State. There are about 700 Sago and Starch units which have made the cultivation of Tapioca a viable proposition. Cultivation of groundnut in 2,71,583 acres cotton in 60,153 acres and sugarcane in 34,122 acres have given rise to further agro-industries. To cite an example Namakkal with 54,873 acres under groundnut has 24 oil mills operating in the area. With paddy in 67,874 acres Attur Taluk has about 207 rice mills. Besides there are ten units engaged in the manufacture of cattle feeds and a flourishing coir industry providing employment to about 7,000 persons in the district. The District Industries Centre plans to organise these workers on better commercial footing to raise their standard of living. It is estimated that coir worth well over Rs. 3 crore are being exported from the district to the northern states. There is scope for a few small-scale units to manufacture coir products like brushes, mats, furnishings and other utility articles. Korai mat weaving, a traditional occupation alone provides employment to more than 10,000 persons. If these workers are brought in the fold of co-operation still a large number of persons in rural areas can be absorbed.

The Action Plan of the District Industries Centre, has emphatically established that the extensive cultivation of jasmine in Salem Taluk gives good scope for starting a jasmine solvent plant at Panamarathupatti. Tapioca starch units suggest the possibility of starting dextrine units, liquid glucose plants and ethanol manufacture. The cultivation of pineapple is plenty in Kolli Hills and large quantities of mangoes produced in and around Salem make the setting up of one or two canning units a profitable commercial proposition. The setting up of some tomato canning units is also justified because of abundant cultivation of tomatoes in and around Avodhyapatnam, Thalaivasay, Pudur, Sankari and Mettur areas. Tapioca waste, oil cakes and molasses are availble in sufficient quantities locally to set up cattle feed units. Salem District is therefore, poised for a thrust in the development of 'agro-industries'.

CORRECTION

IN 'Yojana' issue dated Nov. 1, on page 3, 3rd para, the present potential of irrigation in India was given as '59 million hectares'. It may kindly be corrected as 'about 130 million acre-feet'.

Editor

Sri Sarada College, Salem.

BOOKS

Improving the Productivity

Works Management and Productivity by Rupert Published by Allied Publishers Private Limited, New Delhi, Pages 315, Price Rs. 35.00

THIS book is meant for helping students to grasp the principal idea behind management of productive operations and improving productivity. The importance of a proper plant and production layout has been stressed. Various facts of production planning with special emphasis on stock control have been brought out. Critical path analysis has been touched in brief. The technique of 'LINE BALANCE' used in batch production to effect saving in time, labour and money is well explained and aptly illustrated with an example and chart. Budgetary control and marginal costing methods have been summarised.

Quality control has been analysed in detail. The timely detection of deviations from quality during an operation has been brought out by use of cumulative sum charts. This chapter is the nerve centre of the book.

There is a theoretical dissertation on motivation and its role in achieving productivity targets. Various studies connected with productivity have been mentioned but value analysis which is an important tool of cost reduction has not been adequately explained.

Operation research and system analysis, a recent concept, is set out in lucid manner without using high mathematics. Inventory control and sequencing operations have been explained with an example of each. The important techniques as linear programming, simulation have been explained too. There is a passing reference to the introduction of computer and automation.

In the wake of world-wide awakening on the need for conservation of resources, minimisation of all types of pollution and a search for a viable alternative to oil, the author has also expressed his ideas on the subject. He has rounded off his discussions with various methods as pay off method, present value method for estimating the return before decisions on capital expenditure are taken and also the impact of taxation and inflation on such decisions.

The author's effort to cover a wide range of pictures on the subject is quite laudable. He could have given examples for the other concepts also as he has done in the cast of quality control.

D. P. Rangan

Multi-Dimensional Personality

Jawaharlal Nehru: A Pictorial Biography by B.R. Nanda. Publications Division, New Delhi, Pages 87, Rs. 26.

INDIA has given birth to many great men from time immemorial to save her pride and respect. Jawaharlal Nehru was one of them. He was one of the greatest figures of our generation, an outstanding stateman whose services in the cause of human freedom were unparalleled. His achievements, made possible by his vision, his intellect, his courage, culture and nobility, and his solicitude for the well-being of all mankind, have become a part of India's history.

The book under review, is an account in pictures and words of the life and work of Jawaharlal Nehru. Effort has been made to trace his multi-dimensional Gedye-personality from his childhood, his education, his entry into politics, his association with Mahatma Gandhi and his life-long crusade for India's Independence. Some photographs depict his leadership in the building of a modern India dedicated to democracy, planned development and scientific progress. The book includes his photographs with some eminent contemporaries and associates. It shows Jawaharlal Nehru, the internationalist, with leaders from various countries and continents. The photographs of Jawaharlal Nehru as a man, rational and scientific in his outlook, but immersed in India's glorious past and dreaming of a still brighter future, emerges through the pages of the book. Selection of a small number of photographs from the wealth of pictorial material that exists on Nehru is a task the editor has approached with humility.

It is a memorial album. The brief life story, presented beautifully, is a superb effort. The get-up is excellant. It is a welcome addition to the existing wealth of material on the magnetic personality of the 20th century. The pin-pointed subject index adds to its reference value. Price is quite reasonable.

S. K. Dhawan

Urban Economy

In-Migration and Informal Sector—(A case study of Urban Delhi) Mrs. Atreyi Majumdar—Birmal Institute of Scientific Research—Vision Books Private Ltd.—Pages 110—Price Rs. 40.00.

"IN-MIGRATION and Informal Sector" deals. with informal sector, a segment of urban economy. A few studies have been attempted on this subject so far. The reason is obvious, as the application of the findings of such studies are limited at present due to lack of interest in the problem.

Such studies should be of interest to the planners and organisers of non-formal education or functional literacy and also to the demographers.

Mrs. Majumdar's study does reveal certain basic facts which are worth considering for improving the basic structure of economy of the small towns to discourage migration from small towns to metropolises.

The study reveals that the increase in the population of larger cities like Delhi following migration is due more to the rising urban to urban mobility. This proves that the opportunities and quality of life in smaller towns in India are deteriorating faster specially in some areas, which need careful consideration to save them from economic ruins.

The book is divided into five major sections Chapter-1 mainly deals with the emerging trends of urbanisation in the developing world and examines the implications of rapid growth in the population of cities, labour force, un-employment and informal sector employment. The study proves that the migration from rural to urban areas and small towns to cities is a natural phenomenon corollary to economic growth. It also follows almost the same pattern in every country at one stage of development or other. The rate of urban growth to some extent directly or indirectly gives the status of economic growth in a country. At an early stage of development, the rate of growth of population in urban areas is always very high due to lack of occupational opportunities in rural areas. In this chapter Mrs. Majumdar has given some statistics of the world's fast growing cities to support her thesis. She has also dealt with urban to urban migration problems of the working poor, informal sector and its concept and characteristics.

Chapter-2 gives some tentative estimates of the size of the informal sector in the urban Delhi based on the cesus figures of 1971 and studies by the Directorate of Employment.

Chapter-3 deals with the impact of migration from one area to another and other demographic information.

The results of the random survey of individuals in informal activities in South Delhi as conducted by the B.I.S.R. between November 1979 to April 1980 have been presented in Chapter 4. Chapter 5 focuses attention on the role of the informal sector in Delhi economy together with some worthwhile recmmendations regarding certain measures for making this sector more viable and productive. At the end of the book, there are some useful tables giving industrial classification of persons at work in each division of non-household industry, trade, business, profession or services as in 1971 in Delhi, according to the Census of 1971 and general economic survey. There are two appendices giving information regarding percentage of migrant population and percentage of urban and rural migrants to the cities in India—both in 1961 and 1971.

The case study of the urban Delhi may be usefull for research workers and social scientists interested in similar studies.

Biman Sen

Institutional Credit to Agriculture

Agricultural Finance in India by R. D. Sharma, published by Bharat Book, Pages 237, Price Rs. 55.

IN the context of the Sixth Plan objectives, with regard to the increased institutional credit for agriculture and rural development the new volume under review is a welcome addition to the literature.

The subject matter has been spread over nine chapters. The first chapter throws light on the role of agriculture in Indian economy and the role of credit in achieving agricultural breakthrough. The next chapter narrates the emergence of multi-agency approach to the problem of institutional credit. An analysis of the pattern of agricultural financing in other countries and lessons to be drawn by India form the subject matter of the third chapter. The recommendations of the All-India Rural Credit Survey Committee have been examined in the fourth one. The fifth chapter narrates the steady progress made by the State Bank of India in the domain of agricultural financing indirect and direct. In the first type, the SBI operates through the cooperatives. In the second type it directly functions like any commercial bank. This aspect of the State Bank's activities, according to the author, is particularly interesting as it seeks to fulfil an important socio-economic objective by making loans to a large number of potentially viable farmers.

The activities of the State Bank are continued in the sixth chapter also and the behaviour and policy regarding the rate of interest have been subjected to a critical review in the following chapter. In the eighth chapter the author has made an attempt to assess the role of the SBI in the context of recently nationalised commercial banks and other financial institutions operating in the field of agricultural financing.

On the whole, the author has handled several topics mentioned above quite critically though one may not agree with all the observations and conclusions of the author. The study covers the events only upto 1970, as "the 70"s have been a period of intense and hectic activity......Hence the present volume might be treated as the first one and the threads will be taken up in the next volume............" Readers would be waiting for the second volume with interest.

M. V. Pavate

Cultural Evolution

Cultural Economics by Richard L. Brinkman; published by Heritage Publishers, New Delhi; Pages 432; Price Rs. 150.

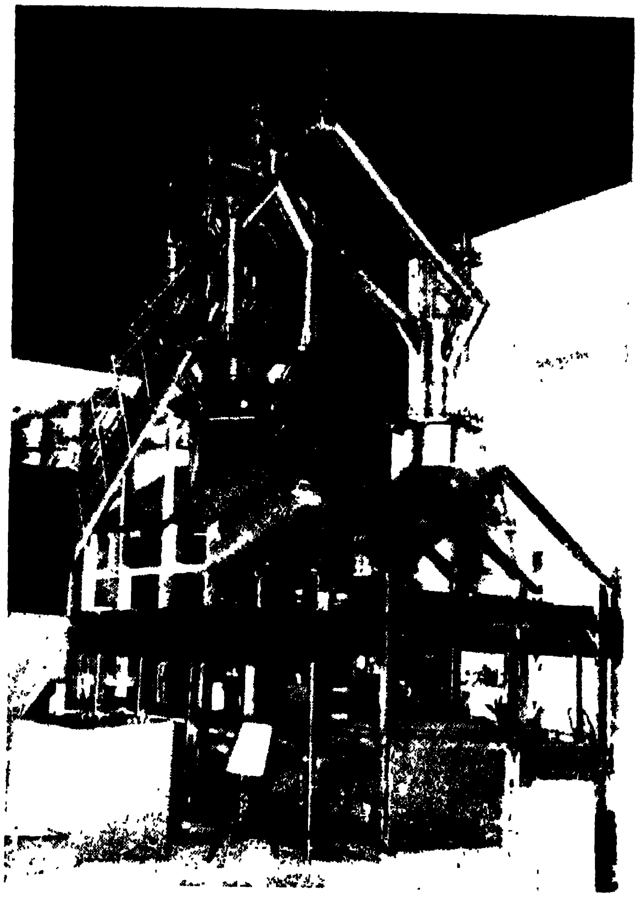
CULTURAL economics signifies conceptualisation and explanation of the processes of economic growth and development in the context of cultural evolution. Appropriately the book under review deals with a medley of eclectic and interdisciplinary methodology of such broad dimensions to include, inter alia, the Works of Simon Kuznets (economics) William F. Ogburn (Sociology) and Leslie A. White (anthropology). To the author Richard L. Brinkman, currently professor of Economics at Portland State University (USA), the title of the book is nothing but an extension of his ideas on a general theory of economic development.

The author avers that normal science in economics has become so mathematical and abstract in its methodology and theory that it is essentially devoid of the cultural and the social. Hence the book is designed to fill up the vacuum and also to relieve the tedium of a static theoretical framework that depends excessively on mathematics and drab statistics.

The book takes such a broad sweep as it contains definition of development, what constitutes growth, energy transformation as an indicator of the process of economic development, the dichotomy of useful knowledge and the theory of cultural lag. The author feels that the existing mathematical theories delineating development in economics do not go far 'to include the dynamics of technological change in a social and cultural matrix'.

The book states that sustained exponential economic growth requires continuous structural change wrought by the processes of economic development. Although the author adopts a multi-disciplinary approach embracing sociology, anthropology and ethics for enunciating economic development strategies, the book would have been a welcome relief and refreshing addition had it been shorn of so many technical jargons and ponderous prose that at times not only tax the patience of even the most persevering readers but also contribute to the cloudiness of issues that concern economic development. Yet another disadvantage that cannot be discounted is the high cost of the book as the ratio of clarity to price is not in proportion.

G. Srinivasan



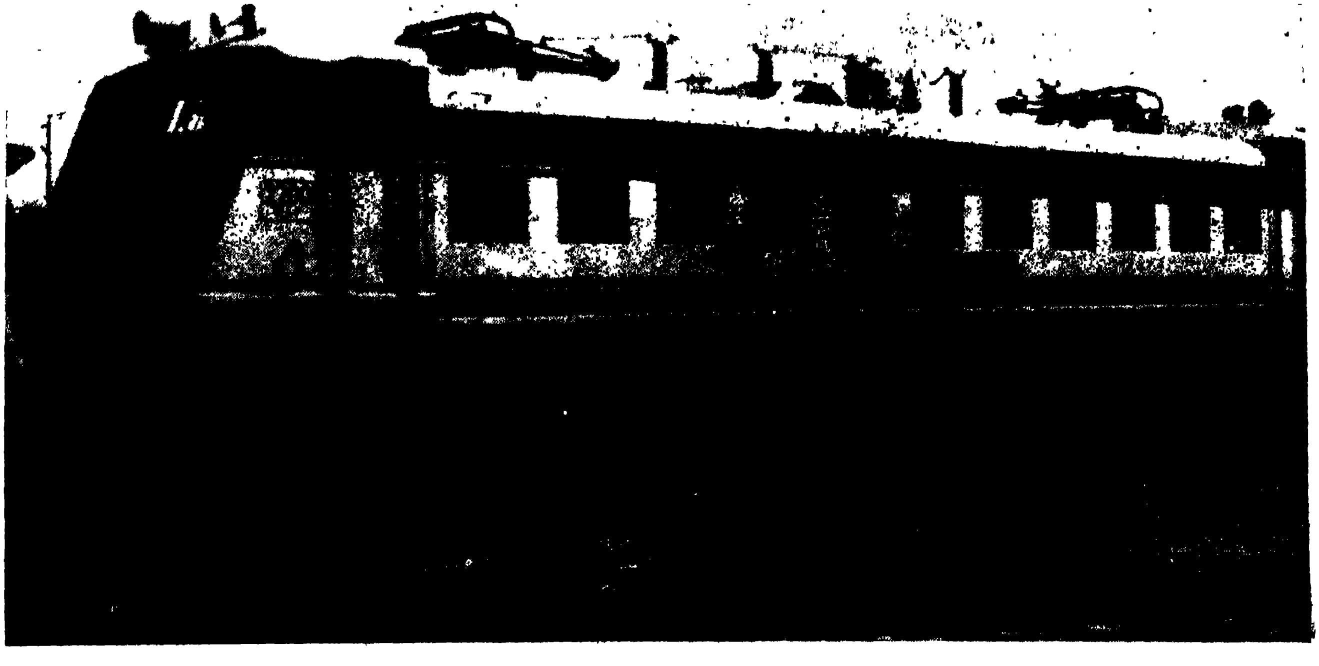
Model of the scraper at the Neyveli Lignite Plant

India International Trade Fair 1981

Report on page 18

Model of the Neyveli Thermal Power Plant

A 4000 *HP Electric Locomotive to be used to haul Rajdhani Express in Railway Pavilion*



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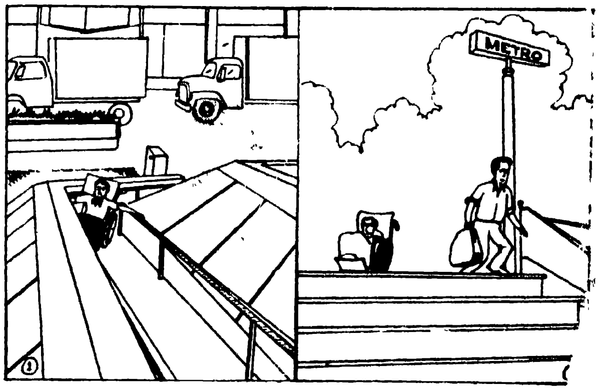
The Prime Minister, Shrimati Indira Gandhi, is delivering McDougald Lecture of F.A.O. 1981 *on "Agriculture, Self-Reliance and Inter-Dependence" at Rome on November* 9, 1981.

Facilities for all

In spite of being normal, we experience difficulty in entering public buses because their entrances are too narrow or because steps to board them are not designed for people's convenience. Many a time, while climbing an over-bridge, we do feel that an underground ramp would have been a more considerate device. When even normal people like us feel this handicap, think of the plight of the handicapped. Indifference to their needs in designing public facilities makes their handicap a little more unbearable.

The architectural and avoidable handicaps have started attracting the attention of urban designers and planners. In many cities of the developed countries, whenever an old building is renovated or a new one is constructed, care is taken to make it accessible as fully as possible to the disabled, the old, the weak and others in such categories. Public transport is another sector where the needs of the handicapped are incorporated into its design and development. The seats near the exit of the city buses, for example, are not only reserved for the old and the infirm people, but also they are designed slightly differently to suit their convenience. In some cases, the buses are fitted with collapsible ramps to facilitate the entry and exit of persons on wheel-chairs.

A person is handicapped in relation to his environment. If the urban social planning can remove this sense of being handicapped from the minds of the people, it would have freed people from great stress.



The stairs themselves constitute the handicap (rig
A building constructed in 1932 *in Winnipeg renova*
making it accessible to the handicapped.

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